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Propeller: **2x 23E50-505**

This is a "Monarch-26" Conversion with Ring-Spar-Mod and 6x passenger seats in the back. It has full dual control and was one of the 1st Invaders converted as a Trainer in Burbanks, CA.



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more info



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Behind the scenes



welcome to the December issue of *FlyPast*. Printing schedules dictate that I'm writing these words shortly after the UK airshow season ended. The clocks have been turned back and the days are growing shorter as autumn fades into winter. However, although public events are on hiatus, fear not, we have stocked up on warbird stories to keep you entertained until the spring sunshine returns!

With the Christmas season almost upon us, the traditional festive phrase of 'goodwill to all men' springs to mind, but our opening feature provides a stark reminder of the bitter demands of wartime as Tom Cleaver recalls the Vietnam War's Linebacker II offensive of 1972, commonly known as The Christmas Bombing Campaign (see page 6). It was intended to stop the North Vietnamese army's push south, but the USAF's initial tactics were flawed and that proved to be a costly mistake.

This issue's anniversary theme continues with one of the great mysteries of World War Two: the disappearance of the famous American band leader Glenn Miller 80 years ago this month. Chris Coot separates the known facts from the fiction starting on page 36, while I step inside

the Miller-linked Twinwood Aviation Museum near Bedford (see page 44).

As many of you will know, *FlyPast* has been following the warbird restoration scene since our very first issue and this month's classic aircraft type, the Handley Page Hampden, certainly lends itself to that lineage. As restorations go, that of the 'Cosford Hampden' are hard to equal given the condition of the wreckage recovered from northern Russia in 1991. We are grateful to the restoration's project leader, the RAF Museum's Darren Priday, for providing *FlyPast* with a behind the scenes visit prior to its imminent transfer from the Sir Michael Beetham Conservation Centre to the RAF Museum at Hendon. It will be a proud day for the restoration team when the Hampden takes its place among the other famous names at the London site.

We also have a double treat for Cold War jet fans. Jamie Ewan details the ambition to restore the cockpit of a Handley Page Victor in the United States, while Mick Britton looks back to the days when military display teams operated frontline jets at airshows in an ear-bashing crescendo of noise and power. Meanwhile, Ken Ellis takes a quieter path, heading to the south coast to examine the rich aviation heritage of the Hamble area (page 90). Enjoy!



Editor

Tom Allett

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A classic Charles Brown image of Handley Page Hampden AT137 'UB-T', 455 Squadron RAAF. See page 50
KEY Collection

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Hell over Hanoi

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Handley Page Hampden

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Duxford classic

The legendary airfield has hosted another exemplary Battle of Britain Airshow – Jamie Ewan reports

TARGET HANOI

The USAF's Christmas 1972 bombing campaign against North Vietnamese targets proved to be a bitter and costly battle of attrition, as **Thomas McKelvey Cleaver** explains



The F-4 Phantom II was America's primary fighter aircraft of the Vietnam War USAF



Left
A 388th Tactical Fighter Wing hunter-killer team refuelling on its way to North Vietnam in October 1972. These 'Wild Weasel' operations were part of the wider Linebacker and Linebacker II bombing campaigns
USAF



fter eight years of war in Vietnam, the US was truly weary of the conflict.

US Secretary of State Henry Kissinger had clinched President Richard Nixon's re-election victory with his "peace is at hand" announcement of October 26, 1972. So when negotiations broke down and the signing of a peace treaty was delayed beyond October 31, Nixon knew US public opinion limited his options. He had to deliver the exit from the war before he was sworn in on January 20, 1973.

Nixon's solution was Operation Linebacker II, conducted by the USAF from December 18 to 29, 1972. Known by several informal names, the one that stuck was 'The Christmas bombing campaign'. The USAF's earlier Linebacker I offensive from May to October 1972 was essentially a series of interdiction operations flown in response to the North Vietnamese Spring Offensive. Linebacker II was something much bigger: a 'maximum effort' bombing campaign to destroy major targets in the North Vietnamese capital, Hanoi, and Haiphong, a major port around 60 miles east-southeast. This time, the B-52 force would join the battle and the forthcoming ten days comprised the largest

heavy bomber strikes launched by the USAF since World War Two.

New recruits

By 1972, the airmen who had participated in Operation Rolling Thunder from 1965 to 1968 were gone, many having left the air force, with those veterans remaining now in more senior positions. The men in the cockpits were young officers like Ken O'Brien, who had joined the USAF intending to train as a pilot after graduating from college in 1970, but that was not to be. He explained: "Halfway through my flight training, the air force in its wisdom decided they had enough pilots, and half my class – including me – were offered other career opportunities."

O'Brien chose to become a navigator and graduated in early 1971 as a weapons system officer, one of the guys in the back seats of the F-4 Phantoms: "My first assignment was to a unit in Florida, where I qualified in the F-4." O'Brien found himself at Korat, Thailand, in August 1972, right at the end of Linebacker I, assigned to the 469th Tactical Fighter Squadron (TFS). As a new guy, he was sent on missions in South Vietnam, with two into Route Pack 1, the southern panhandle of North Vietnam.

In October, he was transferred to the 34th Tactical Fighter Wing

(TFW): "I went out on the flight line around the middle of December, and they were loading out our Phantoms with AIM-9 Sidewinders and the word was we were going back north soon."

O'Brien was assigned to the Wild Weasel missions: "These were hunter-killer missions with the F-105s, two-ship flights where the Weasel carried a

Below
After years of conflict, US public opinion was largely in favour of a complete withdrawal of US forces. This anti-Vietnam War protest took place in Washington DC on October 21, 1967
Universal Images Group via Getty Images



Right

The first B-52 crew briefing for the forthcoming Linebacker II campaign is seen at Andersen AFB, Guam, in November 1972. Early attack plans were based on the USAF's World War Two experiences and proved unsuitable for the SAM defence era
USAF



standard ARM [anti-radiation missile] and a Shrike [missile], while the F-4s carried CBUs [cluster bomb units] to bomb the site after the Weasel knocked it out with its missiles.”

If the air force was going back north, O'Brien would soon see real action. The men on the flight lines did not know about the difficulties surrounding the final negotiations to end the war. Both Nixon and Kissinger were convinced the US government's House of Representatives would seize the opportunity to legislate America out of the war. The Vietnamese-US negotiations stalled in November 1972 and, on December 14, Kissinger sent an ultimatum threatening "grave consequences" if negotiations did not resume within 72 hours. That day, Nixon ordered the reseedling of North Vietnamese ports with

air-dropped naval mines and stated that the USAF should begin planning for an intensive three-day bombing campaign.

On December 18, the US began Linebacker II. There were 207 B-52s available for use in Southeast Asia and Linebacker II would involve nearly half of the manned bomber fleet. While Strategic Air Command (SAC)

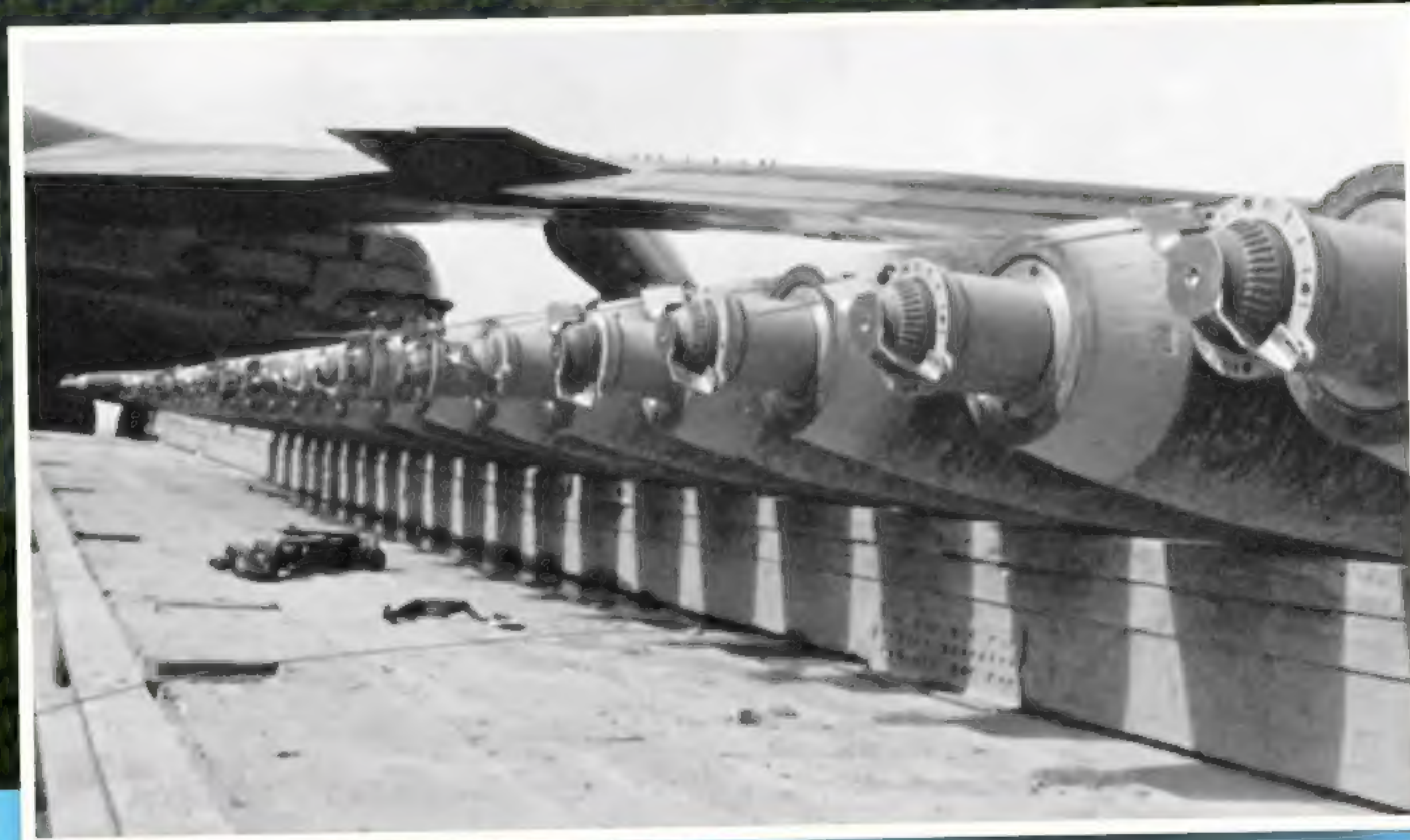
was initially reluctant to risk the aircraft and their highly trained crews in such an operation, many commanders welcomed the opportunity to fly into the heavily defended North Vietnamese airspace, to prove the viability of manned bombers in a sophisticated Soviet-style air defence network.

The September-May monsoon weather made visual bombing by tactical fighter-bombers difficult. Ken O'Brien described the daylight missions he flew during the operation as being nearly impossible: "The Weasel could spot the target with its electronic gear, but we had to have eyes on the target and there was always a cloud deck."

SAC's Linebacker II plan called for the bombers to approach Hanoi at night in three waves, each using identical approach paths and flying at the same altitude. Once the aircraft dropped their bombs, they were to execute post-target turns to the west, which meant

Right

With their shipping plugs replaced by fuses, these bombs are ready to be loaded on a B-52 at Guam
USAF



Right

Although the 'Thud' suffered a high attrition rate, the National Museum of the USAF's F-105G survived multiple combat missions over Vietnam and is credited with a MiG 'kill'
NMUSAF





they would turn into a strong headwind that slowed ground speed by 100 knots. The turn pointed the antennas of their electronic warning (EW) systems away from the radars they were attempting to jam while showing the largest radar cross-section to the surface-to-air missile (SAM) guidance radars.

Lt Col Earl W Tucker, a veteran bomber pilot of both World War Two and Korea, was a senior planner for Eighth Air Force headquarters on Guam and was shocked by the mission profile: “I nearly resigned on the spot, because this was a perfect way to lose a lot of men and airplanes.”

First missions

The first three missions were flown as planned on December 18-20. The USAF, Task Force 77 (the carrier-borne strike wing of the US Navy’s Seventh Fleet) and the Marines provided F-4 fighter escorts, F-105 Wild Weasel SAM-suppression jets, USAF EB-66 and Navy EA-6 radar-jamming aircraft, plus a KC-135 refuelling capability and

search and rescue (SAR) aircraft.

On December 18, 129 B-52s were launched, 87 from Andersen Air Force Base on Guam and 42 from U-Tapao, Thailand. The first wave was sent against the North Vietnamese airfields at Kép, Phúc Yên and Hòa Loc, while the second and third waves struck targets around Hanoi. The North Vietnamese fired 68 SAMs, shooting down two B-52Gs from Guam and a B-52D from Thailand, while two further B-52Ds were heavily damaged and managed to limp into U-Tapao. Only one of the three crews was rescued. An F-111A from the 474th TFW was shot down on a mission to bomb Radio Hanoi, one of five of the new aircraft lost during the campaign.

On December 19, 87 bombers hit targets including the Kinh No railroad complex, the Thái Nguyên thermal power plant and the Yên Viên warehouses. Twenty SAMs were launched, damaging several bombers, but none were lost. The next day, 99 bombers struck the Yên Viên railyards, the Ai Mo warehouse complex,

the Thái Nguyên power plant, a shipment point at Boc Giang, the Kinh No railroad network and the Hanoi petroleum storage area.

A combination of repetitive tactics and the bombers’ degraded EW systems with limited jamming capability led to dire consequences during this strike. The repetitive nature of the strike profiles allowed North Vietnamese air defences to anticipate the bombers, with 34 SAMs salvoed into the bomber stream without radar usage, preventing the Wild Weasels from attacking. Four B-52Gs and three B-52Ds were lost in the first and third waves. A fourth B-52D crashed in Laos while attempting to return to Thailand. Only two of the eight downed crews were recovered.

Ken O’Brien flew his first night mission of the campaign that evening: “I picked up a MiG on my radar, but we couldn’t go after him because he was in the bomber stream. I saw one of the B-52s hit as it made its turn. SAMs were flying

Above

The Soviet-backed North Vietnamese air defences proved to be deadly opponents. This image of anti-aircraft guns was released during the ‘Christmas bombing campaign’ of December 1972

AFP via Getty Images

Right

The VPAF became an increasingly potent threat with many of its pilots achieving ace status. Seen here, from the right: Luy Huy Chao (6 'kills'), Le Hai (7), Mai Duc Tai (2), and Hoang Van Ky (5) in front of their MiG 17

Vietnamese News Agency



everywhere. [The B-52] was hit in its tail and went down. I didn't see anyone get out."

Lt Col Tucker recounted: "The repercussions were fast and furious. SAC was under pressure from the administration to stop the carnage, which was being reported as a bloodbath – which it was." SAC leaders informed the White House that if the missions continued, they "would lose too many bombers and that the air force's central airpower doctrine would be proven fallacious, or, if the bombing were stopped, the same thing would occur."

"The main problem was that SAC based its tactics on a MiG threat that did not materialise. The flight paths, altitudes, formations and timing had not varied. The official explanation was that similarity would be helpful to the crews, who were inexperienced in flying in a high-threat environment. The truth was that SAC had spent years either dropping bombs on undefended jungle or planning for nuclear war, which created a mindset that didn't understand the mission. Those of us with previous combat experience from World War Two predicted this would happen and our prescience

was not well-received when we were proven right."

Lt Col Earl McGill had flown his first bombing mission during the Korean War as pilot-in-command on the disastrous Black Tuesday operation of October 23, 1951, in which Soviet-flown MiG-15s drove the B-29s from daylight skies of North Korea. He flew in all three Linebacker II missions and said December 20 marked "the worst losses suffered by the air force since my first mission back in Korea."

Despite this, President Nixon ordered the effort to be extended

past its original three-day deadline. Since the B-52G's radar jamming equipment was designed for use in the air defence environment of the Soviet Union, not the antiquated SA-2 and Fan Song radar systems used by the North Vietnamese, only the B-52Ds at U-Tapao, which had more powerful and sophisticated ECM gear, could be used safely. The attack waves were smaller, but the tactics did not change.

Hospital tragedy

On December 21, 30 B-52Ds from U-Tapao struck the Văn

Right

The tense facial expressions of these USAF B-52 crew members during a Linebacker II briefing in Guam clearly illustrate the prospect of dangers ahead

USAF





Dinh storage depot and Quang Te airfield. SAMs claimed two more B-52s. The following day, the target area shifted to the petroleum storage facilities in Haiphong, which were struck by 30 B-52s without loss. Ken O'Brien was airborne that night, remembering: "There was a low cloud deck, and it glowed orange from all the explosions."

The same day, a string of bombs from a B-52 damaged by a SAM hit the Bach Mai hospital in the southern suburbs of Hanoi. The hospital was one kilometre from Bach Mai airfield and a major fuel storage facility was 200yds away. The patients had been evacuated to the basement, but 28 doctors and nurses were killed. The tragedy made front page news around the world and increased the anger felt toward the US.

Airfields and SAM sites were added to the target list on December 23. F-111As from the 429th and 430th squadrons of the 474th TFW were sent in first to strike the airfields. There were no B-52 losses, while the F-111s were so successful that they were shifted to SAM site suppression for the rest of the campaign.

On Christmas Eve, 30 B-52s supported by 69 tactical aircraft struck the railyards at Thái Nguyên and Kép without loss.

Final stage

The campaign took a 36-hour Christmas stand-down. Tucker recalled: "Those of us at Guam were finally allowed to create revised plans, while SAC HQ stepped back. When we went back on December 26, we launched an all-out attack on the air defences."

The Eighth Air Force planning staff, which included several World War Two veterans, dropped the use of multiple attacking waves. This time, 78 B-52s took off from Andersen AFB at one time, making it the largest combat launch in SAC history, while 42 others flew from U-Tapao. The B-52s approached in seven streams, four from the east over the Gulf of Tonkin, all at different altitudes, thus keeping the North Vietnamese from salvoing SAMs. The bombers entered and exited the target area in 20 minutes, with each formation departing in different directions.

The force was supported by 113 aircraft creating chaff corridors, Wild Weasel SAM suppression and ECM support. The B-52s struck Thái Nguyên airfield, the Kinh No petroleum complex, the Duc Noi, Hanoi and Haiphong railways, as well as a vehicle storage area at Văn Dinh. The air defence system was overwhelmed by the number of aircraft and the dense blanket of chaff. So many SAMs had been fired between December 18-24 that only 68 could be launched this time. One B-52 was shot down near Hanoi, while a damaged B-52 crashed just short of the runway at U-Tapao, with only two crewmen surviving.

On December 27, Lang Dang, Duc Noi, the Trung Quang railway and Văn Dinh were hit. One B-52 was heavily damaged and its crew ejected over Laos, where they were rescued,



Above

The potency of the Soviet-supplied North Vietnamese surface-to-air missile defences is illustrated in this photograph of a USAF F-105D Thunderchief of the 34th TFS. It's trailing smoke after suffering what was ultimately fatal damage from a missile in 1968

USAF

Left

A USAF B-52 releases its bombs during the Linebacker campaign. This phase of the war represented a major increase in the type's use

USAF





Above
B-52D 'Diamond Lil' survived Vietnam with a MiG-21 'kill' credited during Linebacker II. The aircraft is now preserved at the USAF Academy in Colorado USAF

Right
A shattered B-52D cockpit window, pierced by shrapnel from a SA-2 missile during Operation Linebacker II USAF

while a second took a direct hit and went down over the Trung Quang railway. Two F-4s and an HH-53 'Jolly Green Giant' SAR helicopter were also shot down. The following day, 15 B-52Gs and 15 B-52Ds from Andersen and 30 B-52Ds from U-Tapao attacked five targets. Four waves struck Hanoi, while the fifth hit the Lang Dang railway, southwest of Lang Son.

By December 29, there were few strategic targets left. For that day's mission, the objectives were two SAM storage areas at Phúc Yên and the Lang Dang railway. U-Tapao sent 30 B-52Ds, while Guam despatched 12 B-52Gs and 18 B-52Ds against Hanoi. A further 30 B-52Gs from Guam bombed the jungle in the southern strip of North Vietnam. This final mission suffered no losses.

Statistics

According to the USAF, Operation Linebacker II comprised a total of 741 B-52 sorties, with 729 completing their missions. B-52s dropped 15,237 tonnes of bombs on 18 industrial and 14 military targets, while fighter-bombers added another 5,000 tonnes. Ten B-52s were shot down and five others were damaged and crashed in Laos or Thailand. Thirty-

three B-52 crewmen were killed or missing in action; 33 became prisoners of war, and 26 were rescued.

In his book *The 11 Days of Christmas: America's Last Vietnam Battle*, author Marshall Miche used official records to confirm that "15 B-52s were shot down [and] ten crashed 'on the spot' in North Vietnam, and five flew out of the Hanoi area and into Laos or Thailand before they crashed."

According to researchers Dana Drenkowski and Lester W Grau, the number of B-52s lost is unconfirmed as the USAF figures are suspect. As in Korea, the rules

of combat accounting specified that if an aircraft was badly damaged but managed to land, it was not a combat loss, even if it never flew again. During the operation, the USAF told the press that 17 B-52s were lost, but later reported to US Congress that the total was only 13. Nine B-52s that returned to U-Tapao were too severely damaged to fly again, making them combat losses. The number of B-52s that returned to Guam but never flew again is unknown.

The overall loss is probably between 22 and 27, making Linebacker II one of the costliest bombing campaigns in USAF history, comparable with some of the worst missions flown over Germany in World War Two. The Vietnamese People's Air Force claimed two B-52s, four F-4s and one RA-5C shot down, for the loss of three MiG-21s. Two B-52s were claimed by MiG-21 pilots, both attributed to SAMs by the air force.

On December 22, the Nixon administration offered Hanoi the terms agreed in October. On January 9, Kissinger and Le Duc Tho returned to Paris. The final agreement was the same that had been reached in October and additional US demands were discarded. Kissinger's deputy, John Negroponte, said: "We bombed the North Vietnamese into accepting our concessions." Direct American engagement in Vietnam was over. ●



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Goodwin Sands Dornier wings to be revealed at Cosford



The wings of Dornier Do 17Z-2 5K-AR pictured at Cosford's MBCC in September
All KEY-Jamie Ewan unless noted



Parts of the Do 17 remain in remarkably good condition

The wing section of Dornier Do 17Z-2 5K+AR will be put on display at RAF Museum Midlands in Shropshire next year. An exact date has yet to be confirmed, but staff hope to complete the move in the early part of 2025.

A recovery team led by the RAF Museum successfully raised the Luftwaffe bomber from the English Channel's Goodwin Sands in Kent on June 10, 2013. It had been resting some 50ft below the sea's surface since being shot down

by 264 Squadron Boulton Paul Defiants on August 26, 1940. Although a few parts are missing, the Do 17 is surprisingly intact and has been through an extensive conservation programme at Cosford. It was placed in two hydration tunnels and soaked in citric acid, a technique developed alongside scientists at London's Imperial College. The treatment countered corrosion, removing encrustation and chloride from the

aluminium frame.

At the time, RAF Museum (RAFM) director general AVM Peter Dye described efforts as being carried out in a spirit of "reconciliation and remembrance", an aspect embraced by all involved at the attraction's Michael Beetham Conservation Centre (MBCC).

MBCC Manager Darren Priday told *FlyPast*: "The good news is that early next year, depending on the weather for the move, the wing section of the Dornier will be going

on display within the Test Flight hangar here at Cosford. It will be next to the Defiant, which is appropriate given that this was the type that shot the Dornier down.

"The German aircraft was, to say the least, a very interesting find. It was almost like this cocooned seashell of an aircraft when it emerged from the water – we carefully sprayed it and cleaned it out. On what we've got left now, the bare metal, we've found evidence of the battle that brought the bomber down. We'll aim to find a way to highlight the damage, those bullet holes, to tell visitors the full story. Come the new year, we will be cleaning it up further so that it's ready for display."

Darren and his colleagues are also looking back on their superb restoration of Vickers Wellington MF628, which has been on show within Cosford's War in the Air Hangar for around 18 months.

"We wondered how best to show off the Wellington's stunning geodetic design," Darren said. "We didn't want to cut a section out, but in the end we had a 'light bulb moment', almost literally!

"We opted to leave the rear turret off, meaning visitors can peer into the back of the aircraft and see all the way forward to the front, and with the help of motion-triggered internal lighting, created by my volunteer team here, the interior is illuminated. The internal design, and

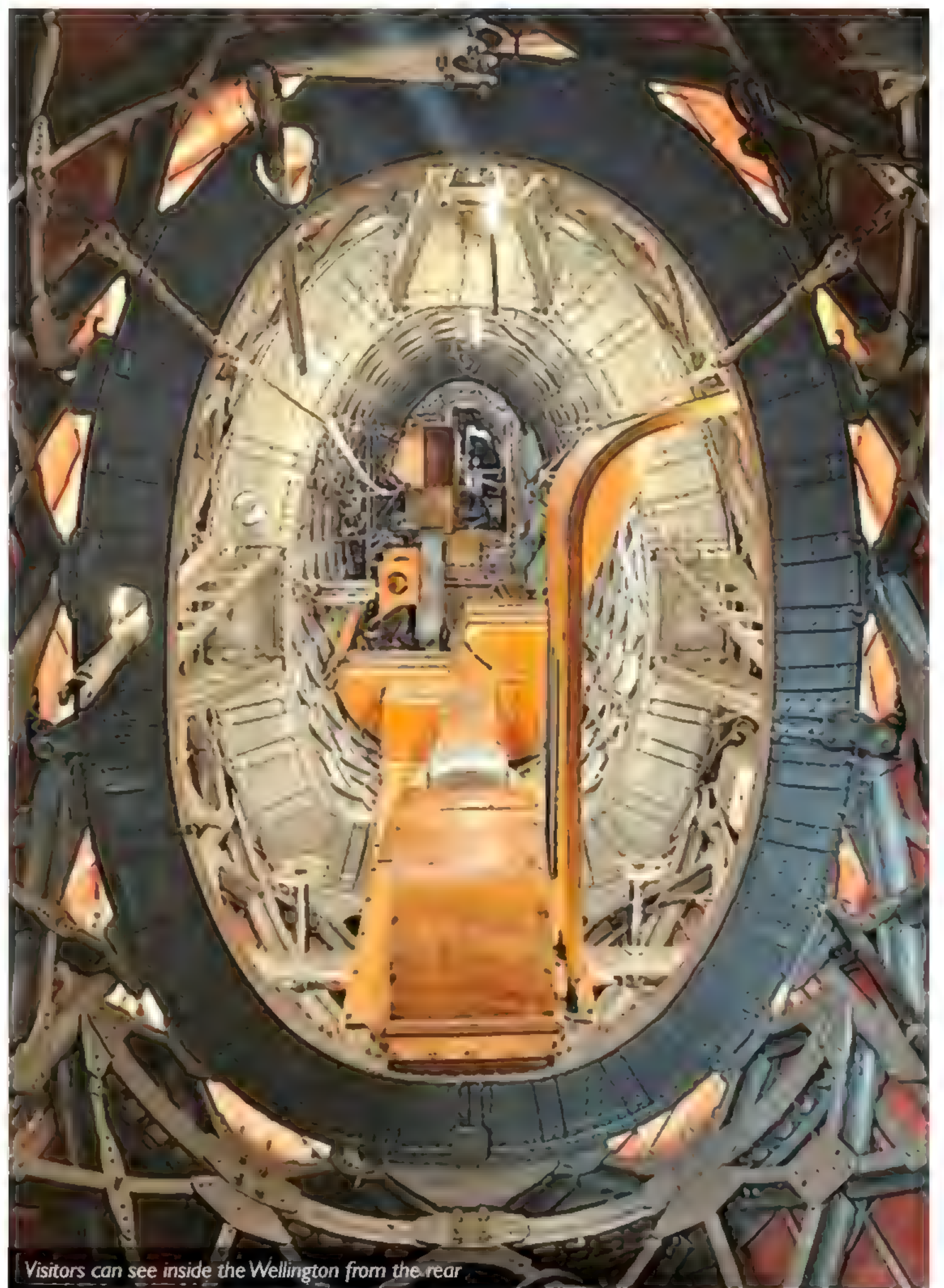




Wellington MF628 is on show within Cosford's Hangar Three

its extraordinary construction, is clear. The actual turret is there too; it's behind you as you look inside the aircraft, and we've also created a small section of geodetic structure so people can see it up close." The Wellington arrived at Cosford in 2010, and over the course of

several years was sympathetically conserved and restored. "It was completely reskinned and lightly refurbished because we didn't want to take away too much of its originality," Darren added. "We stepped in and changed only what we needed to."



Visitors can see inside the Wellington from the rear

Jaguar is unveiled at Coltishall attraction



Jaguar GR.1 XZ384 has been unveiled at Coltishall S Thurtle via C Lamb

SEPECAT Jaguar GR.1 XZ384 was formally rolled out of No 4 Hangar at the former RAF Coltishall (now Scottow Enterprise

Park) in Norfolk on September 5.

It will be on display at the RAF Coltishall Heritage Centre which plans to host events

such as photoshoots, group visits and talks. Special efforts will be made to include young people in the ongoing work to preserve the

aircraft, fostering an interest in engineering and aviation technology.

XZ384 first flew in March 1977 and was

delivered to No.20 Squadron at RAF Bruggen in Germany the following month. The jet briefly flew with 31 Squadron and then 17 Squadron before entering storage at Shawbury in 1985. Its final role was as an instructional airframe at Cosford from 1988.

After being put up for disposal in 2023, the jet was allocated to its new home after a successful application by the RAF Coltishall Heritage Trust, arriving in July. Although XZ384 never flew from the base, Coltishall hosted Jaguar units for more than 30 years, making its arrival especially apt.

Commemorative scheme for Norwegian Vampire

De Havilland Vampire B.52 LN-DHY of the Norwegian Air Force Historical Squadron arrived at Aldergrove, Northern Ireland on September 6 wearing new 502 (Ulster) Squadron markings.

The livery, plus the serial WA123, has been applied to mark both the

100th anniversary of the Royal Auxiliary Air Force this year and the centenary of the represented squadron in 2025. The Vampire also participated in the NI International Airshow on September 7 and 8 at Portrush.

502 Squadron flew the type from the County Antrim station in the 1950s. The livery, which includes

a distinctive 'flash' on the nose and fuselage, has not been seen on an aircraft since 1957.

The unit's OC Wg Cdr Steven McCleery described it as "a fitting tribute to the bold generations of aviators who went before us". **With thanks to Eugenio Facci**



Vampire LN-DHY in new colours recently 502 (Ulster) Squadron

New life for Alouette in student hands



Alouette III '71' has recently been delivered to Seville Roberto Yáñez

Former Romanian Air Force IAR.316B Alouette III '71' (later civil registered as UR-SPK) has recently been acquired by a technical school in Seville, Spain which plans to use it for instructional purposes.

ADA Instituto Tecnológico, well known locally to aviation enthusiasts, has been host to more than 20 aircraft over the years. Several

of these have been donated to the school after being seized in anti-drug and anti-smuggling operations attempting to illegally enter Spain from Morocco.

The collection today features a variety of former military airframes, including MBB Bolkow 105s and Alouette IIs, as well as various ultralights and small craft. **Roberto Yáñez**

Spanish Sabre given much needed facelift

The Museo del Aire's North American F-86F-25 Sabre 'C.5-175/1-175' has recently had its Spanish Air Force Ascua aerobatic team colours rejuvenated.

The new paintwork was completed by the Madrid-based museum's team in

August. The jet is actually 'C.5-223' which served the USAF as 51-13450 before flying with the Spanish Air Force with Zaragoza-based 102 Escuadrón. Retired to the museum after withdrawal from use in the 1970s, it was originally painted in an

Ascuá scheme in 1985, paying tribute to the Ejército del Aire's first jet aerobatic team.

After a much needed repaint, the aircraft has been put on display close to its successor, a CASA C-101 Aviojet of the Aguila aerobatic team. **Roberto Yáñez**



F-86F-25 Sabre 'C.5-175/1-175' has been repainted **Roberto Yáñez**

T-28 pilots celebrate big anniversary



A pair of T-28s at Oshkosh earlier this year **David Johnstone**

The 75th anniversary of the North American T-28 Trojan was marked earlier this year when 23 examples attended the EAA AirVenture in Oshkosh, Wisconsin.

The T-28 was initially seen as a successor to the North American T-6. Durable and robust, the type went on to participate in several conflicts, notably in the Far East and Africa.

In celebrating the recent anniversary, pilots and aircraft from the US, Canada and Australia congregated at Sheboygan County Memorial Airport in Wisconsin where, after honing their formation skills, they flew to Oshkosh. Several different examples of the type were present, reflecting the different services and roles the aircraft fulfilled. **David Johnstone**

Classic helicopter set for flight return in Spain



The Fundación Aeronáutica Antonio Quintana at Cuatro Vientos, Madrid has added Agusta Bell AB-47G-3B EC-DZM to its collection, and plans to return it to flying condition. Built under license by the Italian manufacturer, it served the Spanish Air Force from 1962 and later flew on the civilian register with Spain's Ministry of Interior. It recently emerged from 36 years in storage **Roberto Yáñez**

Mustang 'Shangri-La' arrives at Sywell

Mustang F-51D *Shangri-La* was delivered to Sywell on October 9, travelling by container from Texas to the Northamptonshire

airfield. Formerly maintained by Ezell Aviation in Breckenridge, the aircraft will now be looked after by Air Leasing.

Trevor Dugan from 517 Ltd was there to take delivery, joking that the Mustang would now have to get used to a somewhat different climate: "Our first

job is to complete an in-depth inspection and mini-restoration. With the wings already off and the plane in bits, this is an ideal time to inspect and repair. The

plane seems to be in great shape thanks to Chad Ezell's team. Top of our list is to ensure any weatherproofing is suitable for the UK climate."

Mustang 'Shangri-La' arriving at Sywell
Darren Harbar Photography



Classic Swift returns 'home' to Cheshire

Comper Swift G-ACGL was delivered to the Aeroplane Collection at Hooton Park, Cheshire on September 16.

The sporting single-seater has been loaned to the attraction from RAF Museum Midlands in Cosford, Shropshire.

In fact, sharp-eyed readers will spot its tail in our picture of the Hampden project on page 68 – this was taken just prior to its recent delivery. Hooton Park is a fitting home for the Swift as both the airframe and its Pobjoy

engine were built there in the early 1930s.

The Aeroplane Collection is continuing its Percival Proctor and Sopwith Baby restorations, while Auster AOP6 VF635 (G-ARGB) is to be completed in 663 Squadron colours. Another Auster, G-AIGP, will be given Wright Aviation livery, and Gloster Meteor T.7 WH132 will receive 610 Squadron markings. Both units, and Wright, were based at Hooton.

David Willis



Comper Swift G-ACGL at Hooton Park on September 29 David Willis

BBMF Griffon-powered Spitfire airborne again



The RAF Battle of Britain Memorial Flight returned Supermarine Spitfire PR.XIX PM631 to the air on October 3 following extensive maintenance and a detailed safety assessment. The Griffon-powered fighter was making its first flight since 2021. The BBMF's Merlin-powered Spitfires and Hurricanes are currently on a flying pause while an investigation into the Spitfire MK356 accident continues

Photo-RAF BBMF

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Corsair delivered to Intrepid Museum

New York's Intrepid Museum took delivery of former US Navy Goodyear FG-1D Corsair BuNo 92013 on October 1. The 1945-built exhibit is on loan from the National Naval Aviation Museum in Pensacola, Florida.

Currently painted to represent Lt Cdr Tom Blackburn's VF-17 F4U-1A Big Hog, it will now be used to tell the story of Alfred

Lerch, a decorated Corsair pilot who flew from the *Intrepid* with VF-10. Aged 22, Lerch achieved 'ace in a day' status on April 16, 1945, when he shot down seven enemy aircraft in a single mission near Okinawa. BuNo 92013 will bear the markings of his machine, *White 66*, and is expected to be completed in March 2025.



Museum staff roll the Corsair towards the restoration hangar on October 2 Intrepid Museum

Gulf War Gazelle restoration complete



The Gazelle has been restored to static display standard by JAA
Via Chris Wilson-JAA

Yorkshire's Jet Art Aviation (JAA) has restored Westland Gazelle AH1 XZ343, a Gulf War veteran of Operation Granby.

The aircraft first flew at Yeovil, Somerset, on January 13, 1978, and was delivered to the Army Air Corps (AAC) on February 7. It served with 661 Squadron, the Advanced Rotary-Wing Squadron, 663 Squadron, 12 Flight and 652 Squadron, 661 Squadron once more and finally 665 Squadron. It was one

of 26 of its kind from Nos 654, 659 and 661 Squadrons that were deployed to Saudi Arabia in late 1990 as part of Operation Granby, the British deployment of assets to the Gulf following the Iraqi invasion of Kuwait. At that point XZ343 was coded 'U' with 661 Squadron.

In storage from April 2006, it was acquired by JAA in 2022, and following its recent restoration it is available to buy. **With thanks to David Willis**

New home for P-40 'American Dream'

The Mid-America Flight Museum at Mount Pleasant Regional Airport in Texas has acquired Curtiss TP-40N Warhawk *American Dream* from its previous owner, air racing legend Thom Richard.

Announcing the sale of N977WH on September 13, Thom

said: "Sharing our treasured *American Dream* with all of you has been one of the greatest experiences of my life. I wish it could go on forever. However, all good things must come to an end.

"It's been said that you never really own a warbird, you only take care of it for a while.

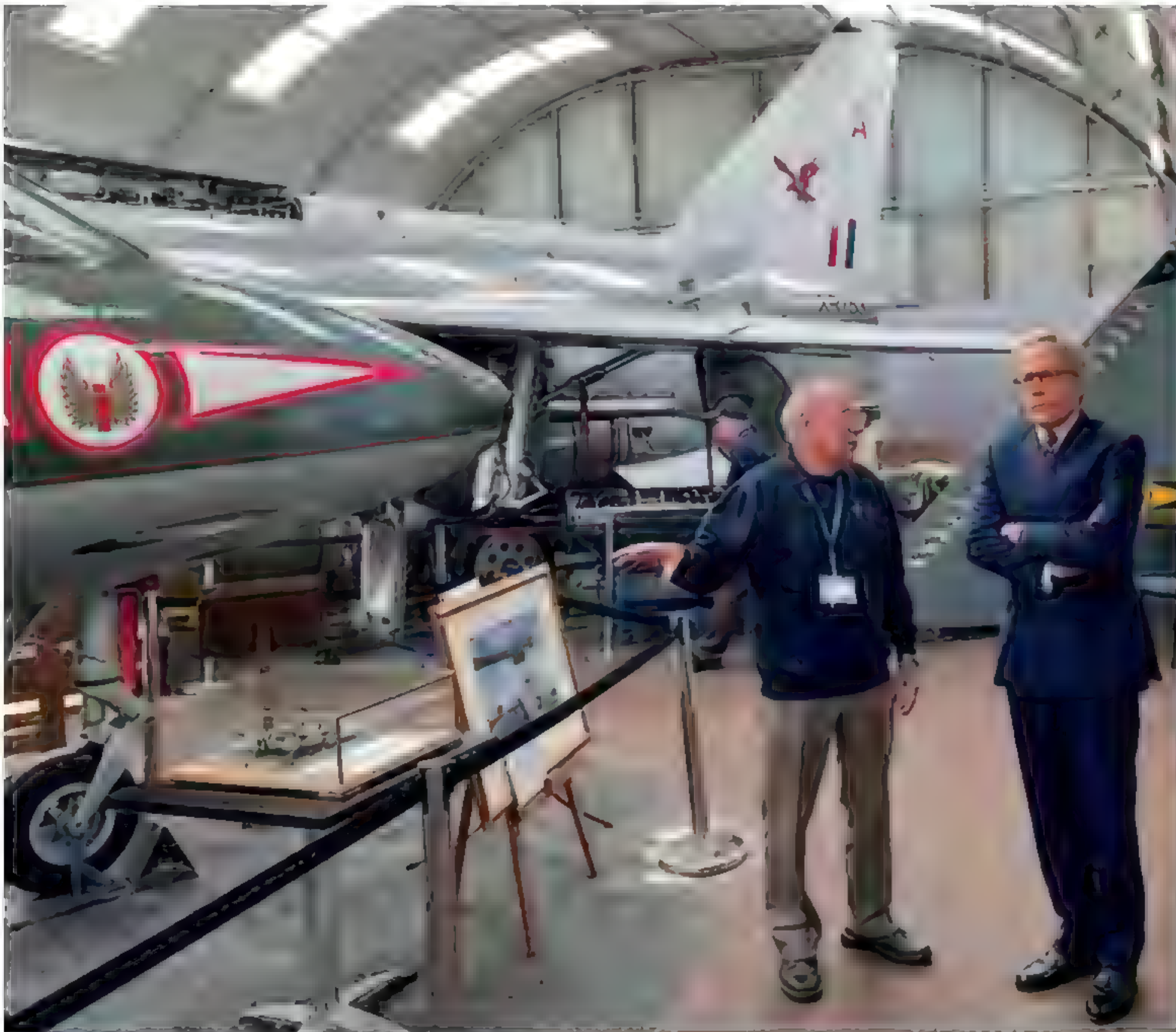
I've always dreamed of being the caretaker of a World War Two fighter, especially the P-40, which is the most fun and best handling of them all. It's been a daunting responsibility, but it turned into an irreplaceable adventure. I'm incredibly grateful for the opportunity and will forever treasure the memories."



Thom Richard flying TP-40N Warhawk 'American Dream' José Ramos

THE DUKE OF RICHMOND VISITS TANGMERE MILITARY AVIATION MUSEUM

Volunteers at the Tangmere Military Aviation Museum were honoured to host a visit from their patron, His Grace, the Duke of Richmond, to showcase their plans for the museum and their conservation work.



On Wednesday 25th September, the museum's patron, the Duke of Richmond, visited to hear about their plans for the future of the museum. Following a presentation in the Neville Duke Hall, they were also able to give him a tour of the museum and to discuss their conservation work. Their main conservation project is the restoration of a Folland Gnat that they purchased from the MOD in March 2023. The Gnat was the forerunner of the Hawk in the Red Arrows aerobatic team, and the museum's example was a support aircraft for the team and became the team's gate guardian at RAF Kemble following a 'hard' landing in 1975. Although the Duke's first passion is motorsport, he showed great interest in the Gnat's restoration and the conservation of historic aircraft in general.

During the tour of the museum, the Duke was interested to learn about the history of RAF Tangmere and to see some of the aircraft that were actually based at the airfield, including two

aircraft from the High Speed Flight, set up to break the air speed record following the second world war. The Gloster Meteor, flown by 'Teddy' Donaldson in 1946 and the Hawker Hunter flown by Neville Duke in 1953, both broke the record off the coast of Littlehampton with speeds of 616mph and 727mph respectively.

The Battle of Britain Hall was a poignant reminder of the airfield's role in that conflict, with many stories of courage in the skies above southern England.

The Hawker Hurricane of Sgt Dennis Noble – who was just 20 years old when he was shot down and crashed in Hove – was excavated in 1996 and is now displayed in the museum as a permanent memorial to the brave airmen that fought in the Battle of Britain in the summer of 1940.

Goodwood Aerodrome itself, under the guise of RAF Westhampnett, also played a key role in the battle and the wider war, and was the airfield from which Douglas Bader flew before being shot down and taken prisoner. A statue of Douglas Bader stands

outside the Aero Café at Goodwood, so the museum's tribute to Bader was of particular interest to the Duke.

It was the Duke's grandfather – Freddie March, The 9th Duke of Richmond – who was inspired by his friend, Squadron Leader Tony Gaze, to convert the airfield perimeter track into the racetrack we know today. A photograph of the famous incident when a Spitfire, flown by the legendary Ray Hanna, flew down the start / finish straight at the opening of the 1998 Revival, caught the Duke's eye, prompting him to recall the event. Although the flypast was planned, Ray was supposed to be considerably higher than he was! He also remembered how RAF Harriers once landed on the lawn outside Goodwood House at an early Festival of Speed, lamenting the tight restrictions now placed on air displays following the Shoreham disaster.

The Duke left after some inspirational words and ideas, and the museum's volunteers look forward to forging ever closer bonds with the team at Goodwood.

Ray Hanna remembered as Reds celebrate 60 years



'The Master' remembered: the Red Arrows lead MH434 through Duxford skies on October 5 KEY: Jamie Ewan

During IWM Duxford's Flying Finale on October 5, the RAF Red Arrows marked the end of their 60th anniversary celebrations with a season-defining

flypast over the historic Cambridgeshire airfield in the company of the Old Flying Machine Company's Spitfire Mk.IX MH434 – the latter in the hands of

Paul Bonhomme.

As well as being the first time these two icons of British aviation have flown together in ten years, the flypast also saluted the

connection between the late, great Ray Hanna, the 'Reds' and MH434. The world-renowned New Zealand-born aviator led the team for a record four seasons

from 1966, and in 1968 successfully increased their number from seven to nine. He later formed OFMC with son Mark and daughter Sarah in 1981, acquiring MH434 two years later. He had first flown this storied warbird in February 1970.

"After months in the planning it was incredible to see those red jets wrapped around the Spitfire like a shield," Sarah told *FlyPast*, "almost as if MH434 was a talisman for them. As wonderful as it was to see, it was also emotional for many involved with MH434 and who knew my father. It really was a glorious way to end the season!"

Mosquito pair fly together in California

History was made on September 21 during the Planes of Fame Central Coast AirFest at Santa Maria in California when two de Havilland Mosquitos flew together for the first time in nearly four decades.

The aircraft, FB.VI PZ474, owned by the Sacramento-based Somers Warbird Collection, and T.43 NZ2308, based in San Antonio, Texas with

Lewis Air Legends, are the third and fourth examples to have emerged from Mosquito maestro Avspecs' workshops at Ardmore, New Zealand.

With Bernie Vasquez leading in PZ474 accompanied in the cockpit by owner Charles Somers, Steve Hinton followed at the controls of NZ2308, joined by Rod Lewis in the right-hand seat.

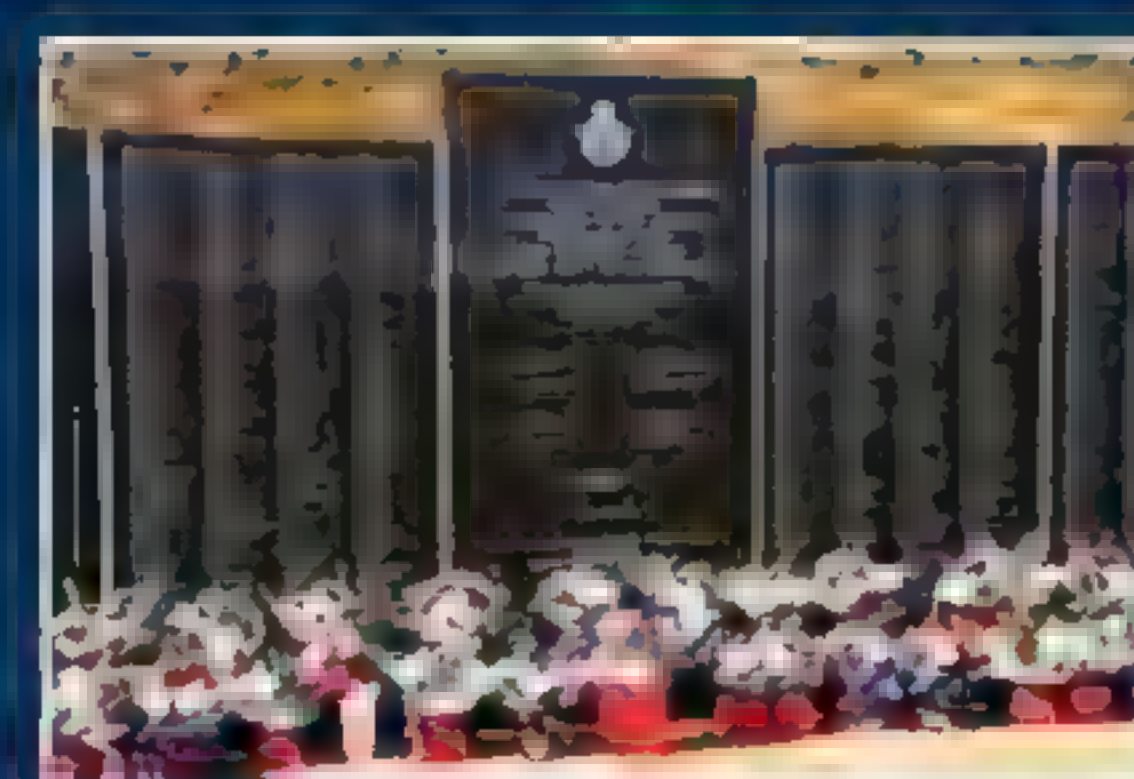


Bernie Vasquez in PZ474 and Steve Hinton in NZ2308 make Mosquito history on September 21 Nigel Hitchman

briefings

The New York-based Tunison Foundation has announced it has stopped work on its PBY-5A Catalina – BuNo 48423, now N423RS – and is seeking a buyer for the project "as is". Last flying in 2009, the former US Navy machine was donated to the Foundation in 2017, with work commencing at its Hudson Valley Regional Airport base during 2022.

Ft Lt Ronald Thomson, a sergeant pilot with 616 Squadron during the Battle of Britain, has been officially named as one of The Few, after it emerged that he flew a sortie during the relevant period. His name is due to be added to the Christopher Foxley-Norris Memorial Wall at Capel-le-Ferne's Battle of Britain Memorial near Folkestone in Kent. *Battle of Britain Memorial Trust*



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Tales of Komets and Thunderbolts!

I was engrossed by the September issue and its great articles about the Messerschmitt Me 163 Komet. About 40 years ago, I was the A-10 Thunderbolt detachment commander at Fliegerhorst Ahlhorn, Germany. Operations officer Mike Spurlock and I were invited to a 'beerfest' at Oldenburg air base. So, we celebrated with the Germans, who sure knew how to celebrate!

We were drinking beer with the best of them – an older man came up to the pilots and introduced himself as Wolfgang Späte. He told us he'd flown Me 163s back in World War Two. He must have downed four beers as he told us tales about his experiences. We found out that he'd also flown Bf 109s

on the Eastern Front before becoming a test pilot. He became the first Luftwaffe pilot to fly the Me 262 jet and then went on to the Me 163, the rocket plane.

He talked about the dangerous fuel and the number of people they lost not in combat but in crashes. It was a scary aeroplane both to fly and for the groundcrews to refuel. We drank a lot of beer and then his son came over, also a Bundeswehr Hauptman (captain). The younger Späte was then an instructor at Oldenburg and had just returned from a three-year tour at Shepherd AFB, Texas, where he had taught at the NATO flight school. He still spoke with a Texas accent ("y'all"). It was cool that father and son

both flew for the Luftwaffe during very different times.

FlyPast featured the Me 163 and talked about the commander of the test squadron, Hauptman Wolfgang Späte, with a great picture of him in his Class A uniform, Knight's Cross and all. As we talked, Herr Späte was not timid in describing his attacks on B-17s and B-24s over Oldenburg – he said it had been his job. Oldenburg is on a direct line from East Anglia to Berlin so there were lots of targets of opportunity up there, he said, and that's why they had the rocket-powered interceptors there at the end of the war.

We were then joined by two senior German gentlemen from the Oldenburg area who showed great interest in our uniforms and patches.

They asked us what aircraft we flew, and I said: "Mike and I fly A-10s. They are commonly known as Warthogs, but the real name is Thunderbolt II". The two gentlemen looked at each other, and one replied: "We owe our lives to Thunderbolts in World War Two". That seemed an odd claim, so I had to ask why.

"In early 1945, both of us were 15-year-old conscripts," he said. "We were loaded with others onto a troop train bound from Oldenburg to the Eastern Front. For draftee young infantrymen, this was a death sentence. Not far out, the train was discovered by three P-47 Thunderbolts who shot the hell out of the engine and the army guard's car. All

the teenagers hopped off the wrecked train and made their way home. We awaited the arrival of the Allies two months later."

The American P-47 pilots would surely never have guessed that by shooting up that train engine, they saved the lives of many German youngsters.

**Col H C Stevenson,
USAF (Ret'd)
Bulverde, Texas**



*Oberst Wolfgang Späte ended the war with 99 victories. He died in April 1997, aged 85
Chris Goss Collection*

Surprise double Lancaster flypast

Steve Hayton's letter about the visit of the Canadian Lancaster (October issue) prompted me to recall seeing both Lancasters unexpectedly on the Friday of 2014's Goodwood Revival.

All at Goodwood had been disappointed when it was announced that the Lancasters would not be able to appear as scheduled due to an engine problem with the Canadian aircraft. However, as I left

Goodwood in the early evening and headed west slowly along the very congested Chichester bypass, there they both were, heading east in close formation and on a low pass right over the city of Chichester!

What a sight they were, with the sun beginning to set behind them. The bypass, already crawling, came to a standstill as people leant out of windows or got out of their vehicles to watch and

take photographs. It was an extremely evocative and probably never to be repeated occasion, and was actually better than seeing them at Goodwood!
**Peter Kuruber
Taunton, Somerset**



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Recalling the Trident tragedy

The feature on the fatal accident of Trident *Papa-India* in 1972 (October issue) brought memories flooding back.

I was a trainee ATCO at London Centre that afternoon. The outbound radar controller on the Terminal Area sector was caught out when the aircraft disappeared on his display; he thought maybe the aircraft had descended and turned left to go downwind for an emergency landing back at Heathrow, but the tower controllers confirmed that was not the case. As you can imagine there was much confusion and one of our crew chiefs said: "I reckon it's crashed", which none of us could believe at the time.

Eventually all was resolved when a phone call at the supervisor's desk said there was indeed a crash near the Staines reservoir. My next task was to contact Brussels to cancel the arrival estimate as the aeroplane had crashed – the controller there was as disbelieving as we were.

Regarding the mention that there was no fire – this is not entirely true. I had a friend on the first fire vehicle to arrive. They unloaded their petrol generator, started it and a spark from it ignited the grass so their first job was to put out the fire they had caused as there was fuel all around the aircraft!

John Newman
Via email

Bringing the Aviojet to life

The photograph in the August *FlyPast* of a CASA Aviojet mounted on a plinth brought back happy memories of my participation in this project. It started when a member of the C 101 design team approached me on the Martin-Baker stand at the Farnborough Air Show. He explained that they were designing a jet trainer to be powered by a Garret turbofan which would make it more economical to operate than current trainers. As the manager responsible for new programmes up to contract award, I agreed to visit them in Seville to discuss their escape system requirements. Things got off to a slow start in Seville when I asked the taxi driver to take me to "CASA" and he

said 'which house?!' I eventually arrived at an office over a garage and met the team of four designers. We got on famously and I agreed to provide them with all the details and an example of our Mk 10L seat. They also needed advice on the landing gear and I was able to help them obtain one complete Hawk main undercarriage leg and wheel.

The programme gathered momentum and was transferred to Getafe in Madrid where they built the full scale mock-up. I made several visits as the work progressed until they had the design finalised at which point we needed to test the canopy cutting system. I arranged a test programme using the blower tunnel at Boscombe Down to simulate an airspeed

of about 250kts. The miniature detonating cord arrived from the USA and was attached to the canopy on a fully representative forward fuselage. With the four Griffon engines driving the fan roaring at full power, the canopy was shattered and the results recorded on high speed cameras.

The ultimate test was a zero-zero ejection from the test fuselage in the middle of Getafe airport. Our team and all the equipment was transported there on Martin-Baker's Dakota (G-APML), the front cabin having eight passenger seats and the rear housing the test equipment and workshop. I have often wondered what airline passengers thought if they saw the spectacular ejections!
Brian Miller OBE
Penn, Bucks

Avro Anson – past and present

I enjoyed reading about the Avro Anson's history in the August issue. I took my first flight in an Anson as a cadet at Wrexham ATC in 1954. We were all at summer camp at RAF Shawbury. The aircraft, which had yellow training markings on it, was used for navigational training. We had to put on a 'harness' and were supplied with 'chest parachutes' – we

had to check that the thin red chord was secure under the 'flap'. It all felt very daunting.

It was on a Saturday a few years ago that I heard a 'different' kind of aircraft engine overhead. I could see that it was an Anson, and it was lining up for approach to Blackpool Airport. I called into the airport office to enquire as to why it was there, explaining my interest and telling

them about that first flight of mine. A phone call was made to the pilot who was staying overnight, and I was then told to be at the airport at 11am the next morning to meet him. He let me sit in the cockpit and informed me the Anson was due to fly to Old Warden and the famous Shuttleworth Collection later that day.
A K Ackerley
Blackpool, Lancs

That unexpected Spitfire flight

Peter Caygill's letter in the June issue [about a WAAF who unexpectedly got airborne while clinging to the tail of a Spitfire] jogged memories of the 'tailwagger' as she was known to members of the Surrey Aircraft Preservation Society. As a member of the society, LACW Margaret Horton joined others on an invited visit to RAF Coltishall in April 1975 to see the Battle of Britain Memorial Flight. The Flight treated Margaret

like royalty and she was reunited with Spitfire Mk.Vb AB910 that had unwittingly transported her all those years ago. Numerous photographs were taken of her by the Flight's photographers draped over the Spitfire's tail. The society was also shown a hangar full of then new Jaguar GR1s recently delivered to 54 Squadron – no photographs allowed of those!
Cyril Leeson
Via email

CHRISTMAS GIFT GUIDE

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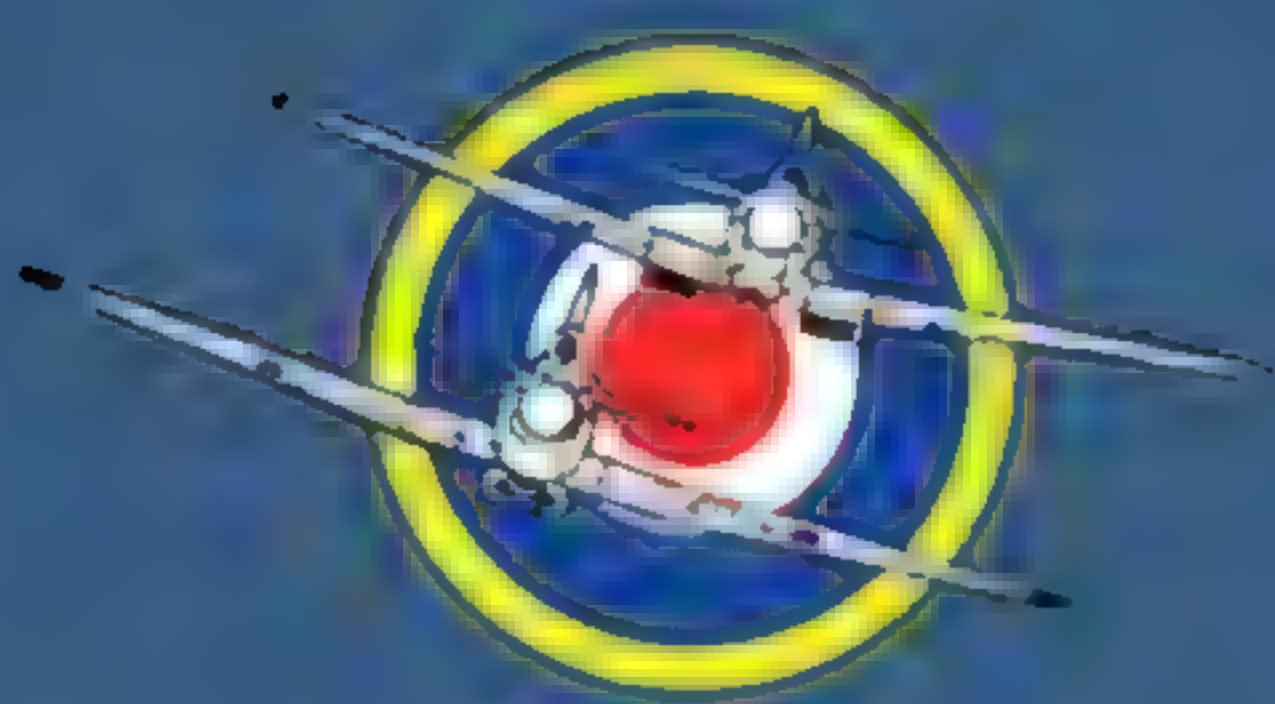


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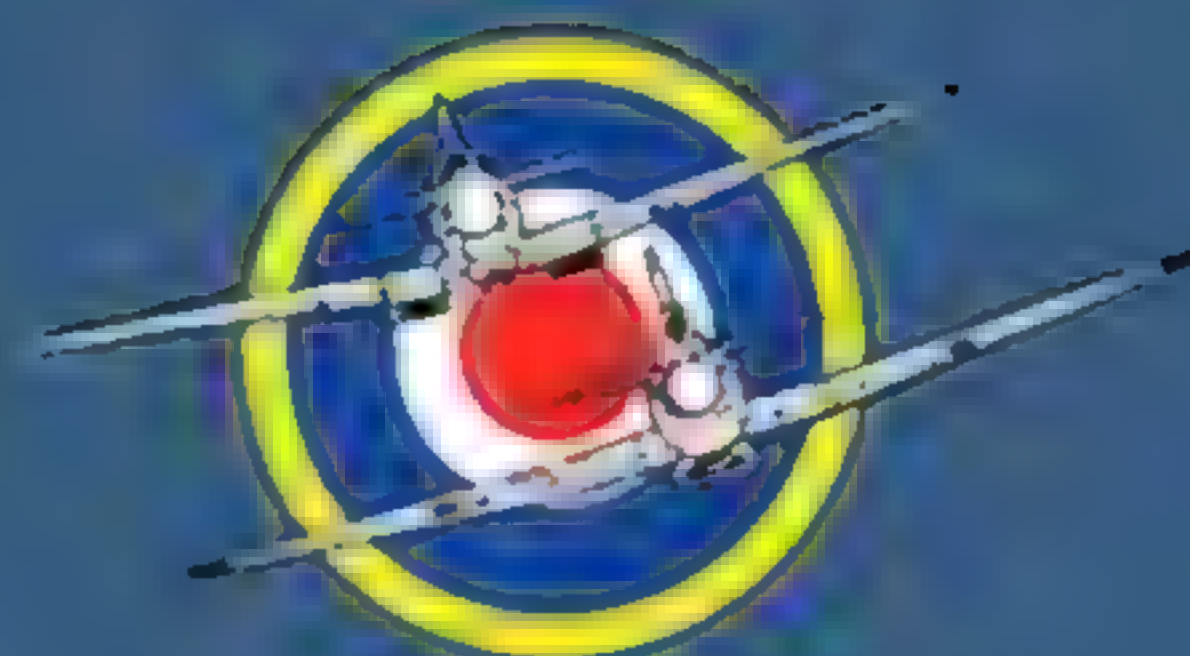
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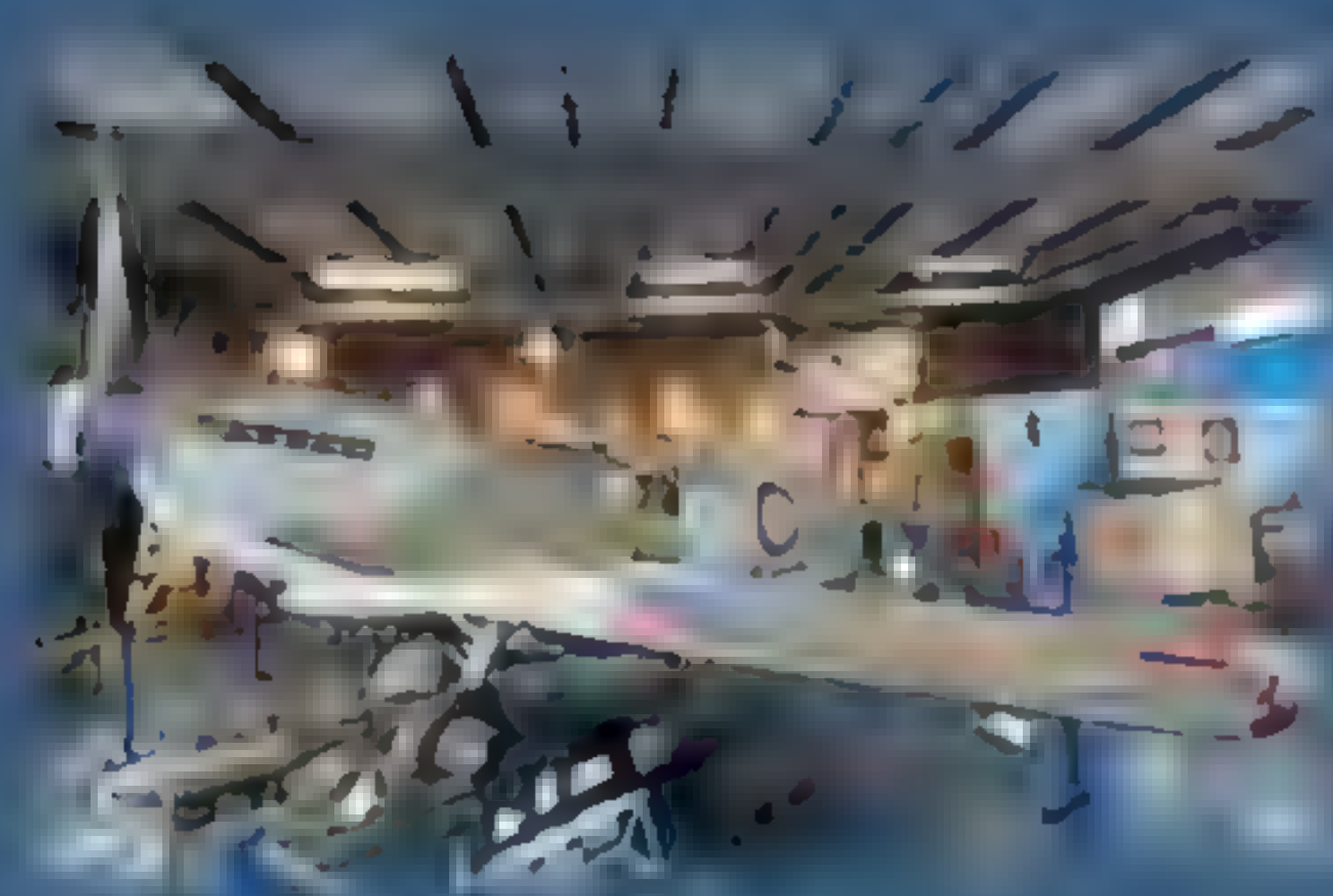
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CHRISTMAS

GIFT GUIDE

Special Edition Spitfires from CORGI

CORGI's collection of Special Edition models in the Aviation Archive range has grown with the addition of AA38708 Supermarine Spitfire PR.XIX PS853, as operated by the Rolls-Royce Heritage Hangar. This beautiful 1:72 scale die-cast metal model includes a display stand and a collector card detailing the aircraft's history. Entering service in January 1945, it flew reconnaissance flights over German V-weapon sites. Today, PS853 continues to delight enthusiasts with



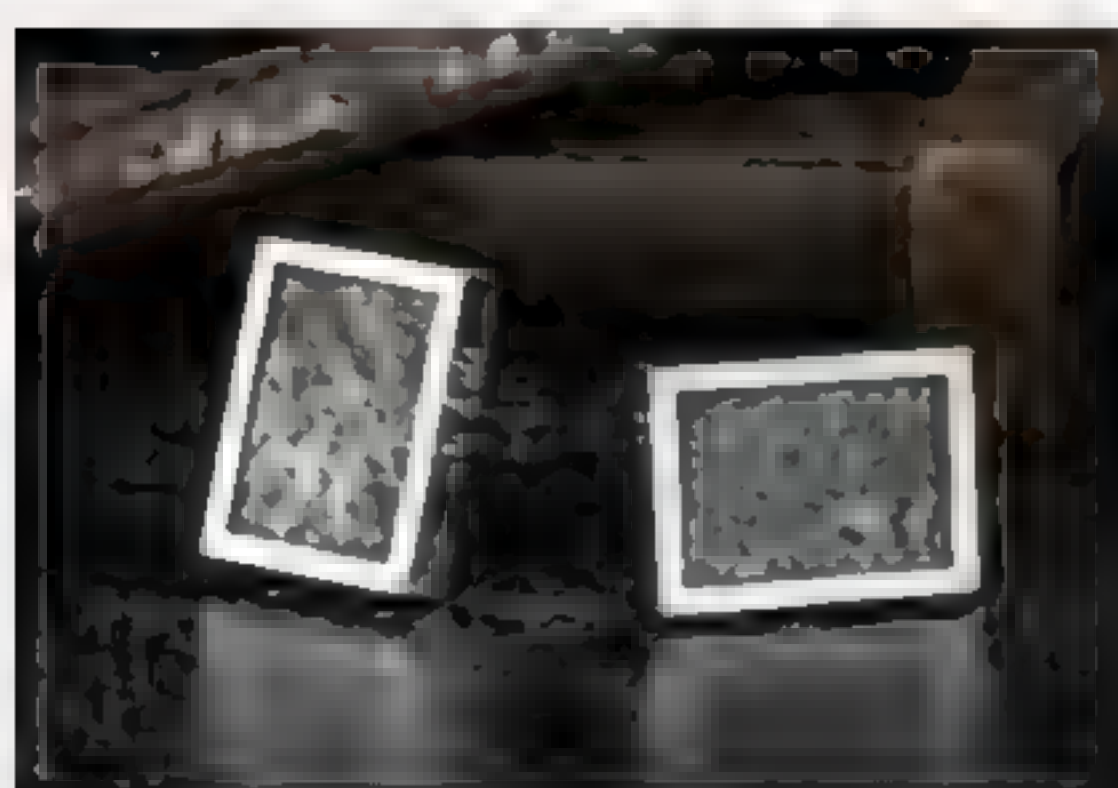
its distinctive Rolls-Royce Griffon growl. The PR.XIX model sits alongside a very different Supermarine sibling in the range: AA29201 Spitfire T.9 *Grey Nurse*, as operated by the Biggin Hill Heritage Hangar, which continues to

ferry customers eager to take to the skies in a Spitfire. The beautiful 1:72 scale model of this two-seater remains immensely popular in the Aviation Archive range and is a perfect souvenir for those who have taken to the skies aboard her.

CORGI Aviation Archive SE releases are open edition, meaning they will be produced as long as there is demand, and are perfect as gifts or as an introduction to the die-cast collecting hobby. See www.corgi.co.uk

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Finding the perfect gift for hard-to-buy-for people can be an arduous process, but specialist Hepburn & Hughes has created an elegant range of sterling silver pieces using genuine parts salvaged from aircraft, including the Spitfire, Lancaster, Hawk, Chinook and Concorde. Handmade from high



quality 925 sterling silver, the collection includes highly polished cufflinks, pendants, tie pins, rings and earrings, all supplied with certificates of provenance. These timeless designs are ideal gifts for aircraft enthusiasts. Materials used are maintained in their original form – nothing is melted down, so the fuselage from a Spitfire still bears the markings from its missions, even featuring the Sutherland Green paint that made the aircraft so recognisable. Hepburn & Hughes is offering a 10% discount for *FlyPast* readers on all items of jewellery store-wide, by entering the code 'Flypast' at checkout. www.hepburnandhughes.com

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video that captures all action. Customers also receive a certificate, an autographed photo of the aircraft, a copy of the in-flight video and a logbook entry. The very experienced organisation also offers front seat transition training and Mustang check-out training programmes for those higher up the experience ladder. They're endorsed by the FAA and major aircraft insurers, as well as being widely respected by the global aviation community. Stallion 51 is located at Kissimmee Gateway Airport (KISM) in Florida. For more details, see www.Stallion51.com or e-mail info@stallion51.com

Vulcan related gifts

Based at London Southend Airport, the Vulcan Restoration Trust continues to preserve Vulcan B.2 XL426 as a live, taxiing example of Avro's mighty delta. Sales of souvenirs and memorabilia provide help to keep XL426 in tip-top condition. The latest additions are the Vulcan Shatter t-shirt and sweatshirt, popular with enthusiasts back in the 1990s and early 2000s, and now revived by the Trust. Both t-shirts and sweatshirts come in a variety

of sizes, with the t-shirt available in black or blue and the sweatshirt in black. Memorabilia collectors will also welcome the Trust's new Vulcan Display Flight Collectors Coin. This year was the 40th anniversary of the Flight's formation at Waddington, with XL426 being its first aircraft. The coin marks that anniversary and is the latest in a series that will feature every RAF unit with which XL426 served. Only 50 coins have been produced, each one having been taxied on-board XL426. Visit shop.avrovulcan.com



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they have found a new purpose in trying to defend Berlin's freedom after the imposition of a Soviet blockade. *Cold War* depicts the continuing struggle of those scarred by the war to establish new, enduring relationships."

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CHRISTMAS GIFT GUIDE



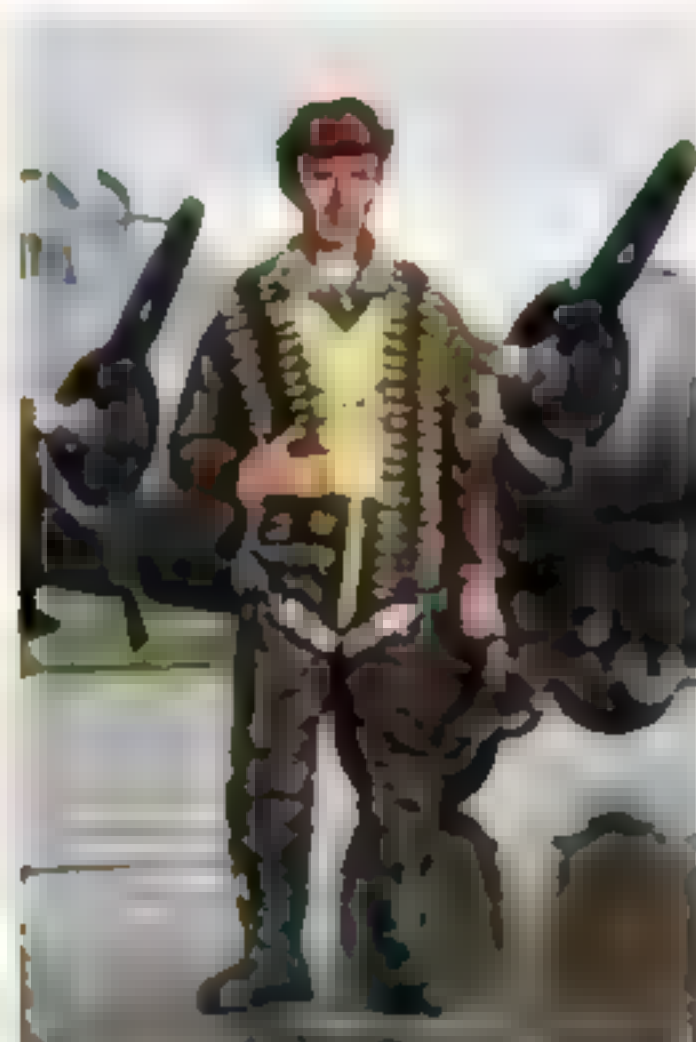
10078.....\$48
U.S.A.A.F. Bomber Captain,
England, 1943-45



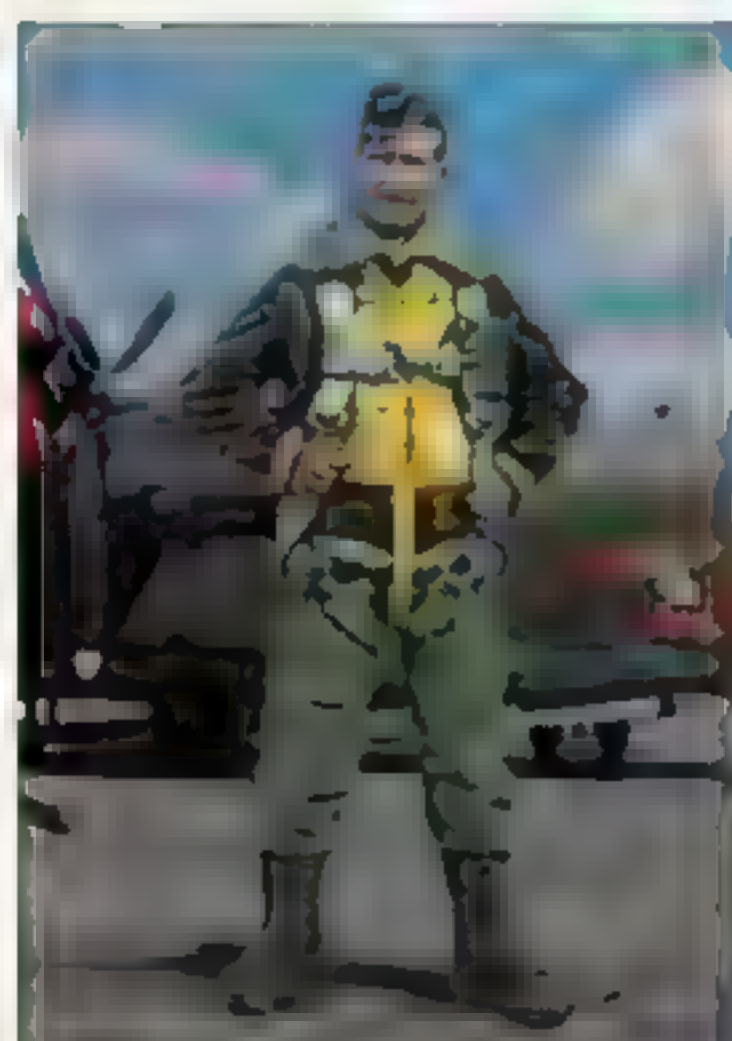
10176.....\$48
U.S.A.A.F. Co-Pilot, 1942-45



10175.....\$48
U.S.A.A.F. Heavy Bomber
Crewman, 1942-45



10124.....\$48
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1943-45



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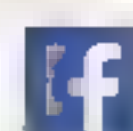
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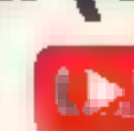
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Two warbird calendars

GHOSTS 2025: THE GREAT WAR AND A TIME REMEMBERED, Philip Makanna, www.ghosts.com, SBK, ILLUS, 12 primary images, UK £18.99, US\$17.99

American photographer Phil Makanna needs little introduction to historic aviation fans as his glorious images have graced the pages of numerous publications for more than five decades. His *Ghosts* calendars, with separate editions for each of the two world wars, are known for their stunning aerial content and high-quality production values and the 2025 editions maintain those

standards.

Each month has its own beautiful 20x14in image which opens up to 20x28in and all are suitable for framing. Many of the most famous warbirds types are featured and both calendars contain a chronological history of the aviation events of their respective conflicts, along with aircraft specifications and silhouettes.

UK distribution is through

The Calendar Club at www.calendarclub.co.uk. World War One aircraft are depicted in *The Great War* edition, while those of World War Two are in *A Time Remembered*. Both are top-quality products that, considering their size and price, offer excellent value for money.

All reviews by Tom Allett unless noted



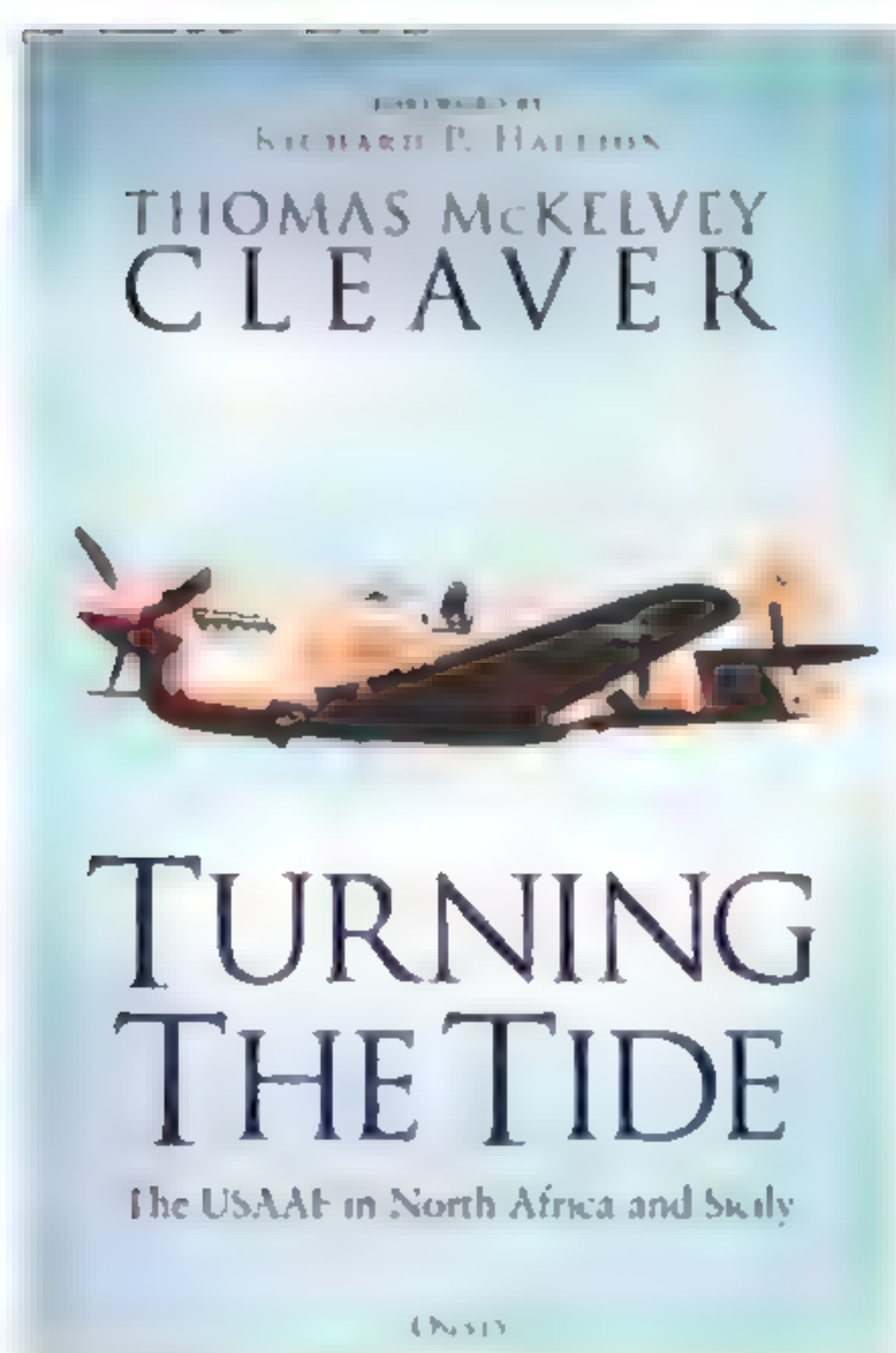
Desert duels

TURNING THE TIDE, Thomas McKelvey Cleaver, www.ospreypublishing.com, Hbk, ILLUS, 320PP, UK £25, US\$32

This is an 'all guns blazing' history of the USAAF campaign in North Africa and Sicily during World War Two. Author Thomas McKelvey Cleaver adopts his usual style to intertwine

numerous first-hand recollections from aircrew who participated in this often-overlooked campaign with a broader wartime history to deliver a truly compelling read. Beginning with their 1942 arrival in the theatre of operations, it describes how some of the USAAF units in Morocco were crewed by rookies who learned the hard way against more experienced Luftwaffe veterans.

The book also notes how the bitter experiences suffered in this deadly campaign were ultimately not in vain as they would prove beneficial in honing the USAAF's powers for the ever-expanding battles in European skies during the latter stages of the war. A central section contains 26 photographs that this reviewer has never seen before, all reproduced on high quality paper.



1936 RAF Losses

ROYAL AIR FORCE SQUADRON
LOSSES: 1ST JANUARY 1936 – 31ST
DECEMBER 1936,
W R Chorley and P J McMillan,
www.aviationbooks.org,
SBK, ILLUS, 386PP, £23.99

Author WR 'Bill' Chorley has been at the forefront of studying and recording RAF aircraft and crew losses for the last three decades. His latest publication, the third to be co-authored with P J McMillan, is slightly different to their previous books in that it covers the casualties incurred during a single year, in this case 1936. This, the authors explain, is not due to an overwhelming number of aircraft crashes in that particular year but more because of the wealth of information available, presented in some of the

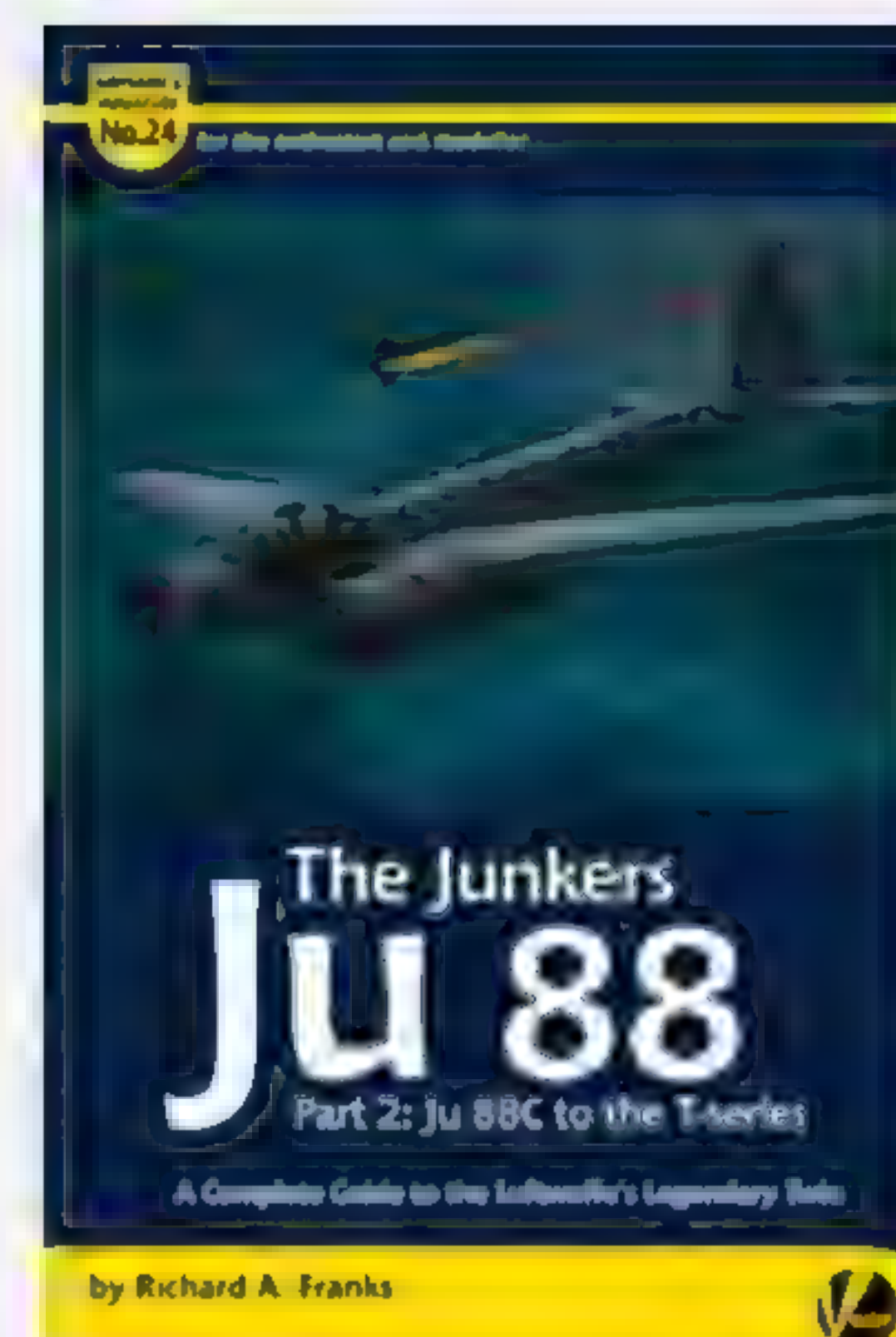


appendices. A very high percentage of the aircrew named were destined to fly operationally in World War Two, where many of them would be killed. As a result, this latest exhaustive study of RAF casualties is not just an invaluable tool for those researching the RAF's pre-war history; its usefulness spills over into the conflict that followed.

Luftwaffe bomber

THE JUNKERS JU 88 –
PART 2: JU 88C TO JU 88T,
Richard Franks,
www.valiantwingspublishing.co.uk,
SBK, ILLUS, 256PP, £28.95

Aimed at both the historic aircraft enthusiast and scale modeller, volume 24 of this high quality A4-sized series of books is the second to focus on one of the Luftwaffe's most versatile aircraft types. Covering Ju 88C to Ju 88T variants, its content includes more than 40 pages of technical information, over 60 pages of walkaround images and technical diagrams, 35 pages illustrating camouflage and markings, plus 25 pages of scale model builds and modelling information.



Further illustrations are provided by more than 200 photographs and colour aircraft profiles, all reproduced on superior-quality gloss paper. The copious details featured will be attractive to those with an engineering interest in this successful aircraft while also providing a fine guide for scale modellers.

Cold War insight

PACAF AND ALASKAN AIR
COMMAND IN THE 1980s,
Adrian Symonds,
www.amberley-books.com,
SBK, ILLUS, 96PP, £15.99

This is a nostalgic look at how US air power was organised in a period when the Cold War appeared to be getting even cooler. In the 1980s, the USAF's Pacific Air Forces (PACAF) based in Hawaii, Japan and South Korea co-ordinated with those in Alaskan Air Command (AAC) to defend America's interests in the more than 100 million square miles of the Pacific basin. Their teamwork with many other tactical and reserve units is covered too. The book allows readers to gain an understanding of



their tasks, determined by North American Aerospace Defense Command (NORAD), in defending against potential threats in the region during the tense era of the 1980s through to the then politically calmer time of the 1990s. The book is illustrated using some 140 colour images of aircraft, ranging in size and role from the T-33 to the B-52, many of which have not been published before.

Czech Wellingtons

NO.311 (CZECHOSLOVAK)
SQUADRON IN RAF BOMBER
COMMAND 1940-1942,
Steve C Smith,
www.aviationbooks.org,
SBK, ILLUS, 366PP, £26.99

In this mighty A4-sized tome, author Steve Smith tells the story of 311 (Czechoslovak) Squadron, the first and only Czech squadron to fly with Bomber Command during World War Two. Aided by many experienced and well-known researchers, Smith goes way beyond the often-meagre information provided in the unit's operation book, incorporating countless meticulous records kept by the Czechoslovakian personnel to provide a raid-by-raid history. Unlike most of their RAF counterparts, 311 Squadron's crews had

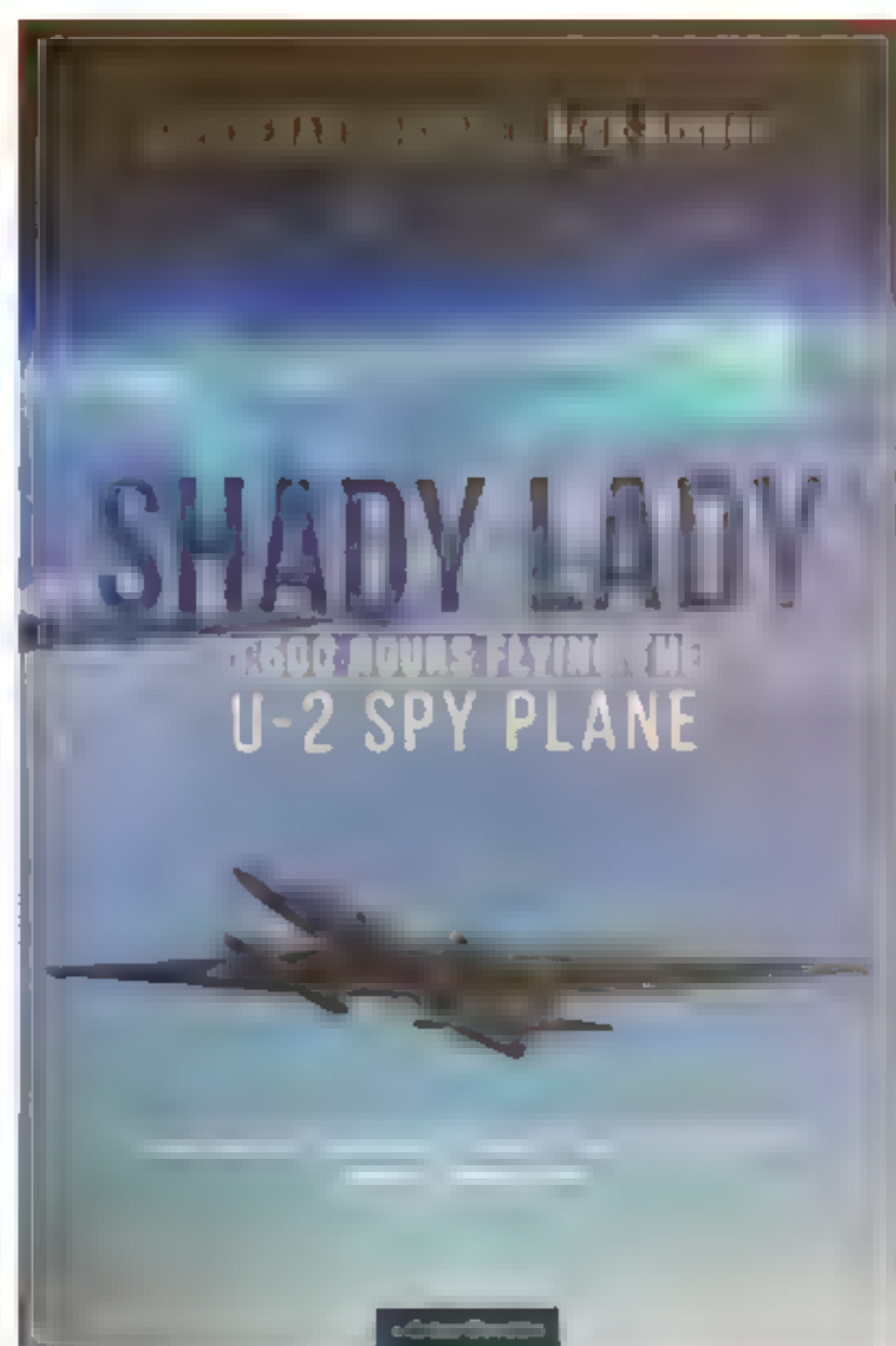


already witnessed the Nazi occupation of their homeland and were highly motivated by their burning desire to win back their country's freedom. Operating the Vickers Wellington, their heavy losses are evident: each casualty is listed, as are the 34 individuals who survived to become prisoners of war. This is a worthy tribute to their sacrifice and a useful addition to the bookshelf of anyone interested in the Allied bomber offensive.

Dragon Lady

SHADY LADY: 1,500 HOURS
FLYING THE U-2 SPY PLANE,
Lt Col Rick Bishop,
www.crecy.co.uk,
SBK, ILLUS, 280PP,
UK£11.95, US\$19.95

Former pilot Rick Bishop's memoir of flying the U-2 at the edge of the Earth's atmosphere was originally released in 2017. It takes the reader into the secret world of the Dragon Lady, where the interview process to judge a pilot's suitability to fly the aircraft lasted two weeks. It explains, as far as operational security allows, 'air-breathing' (non-satellite) reconnaissance with a revealing and detailed account of the challenges of flying what was

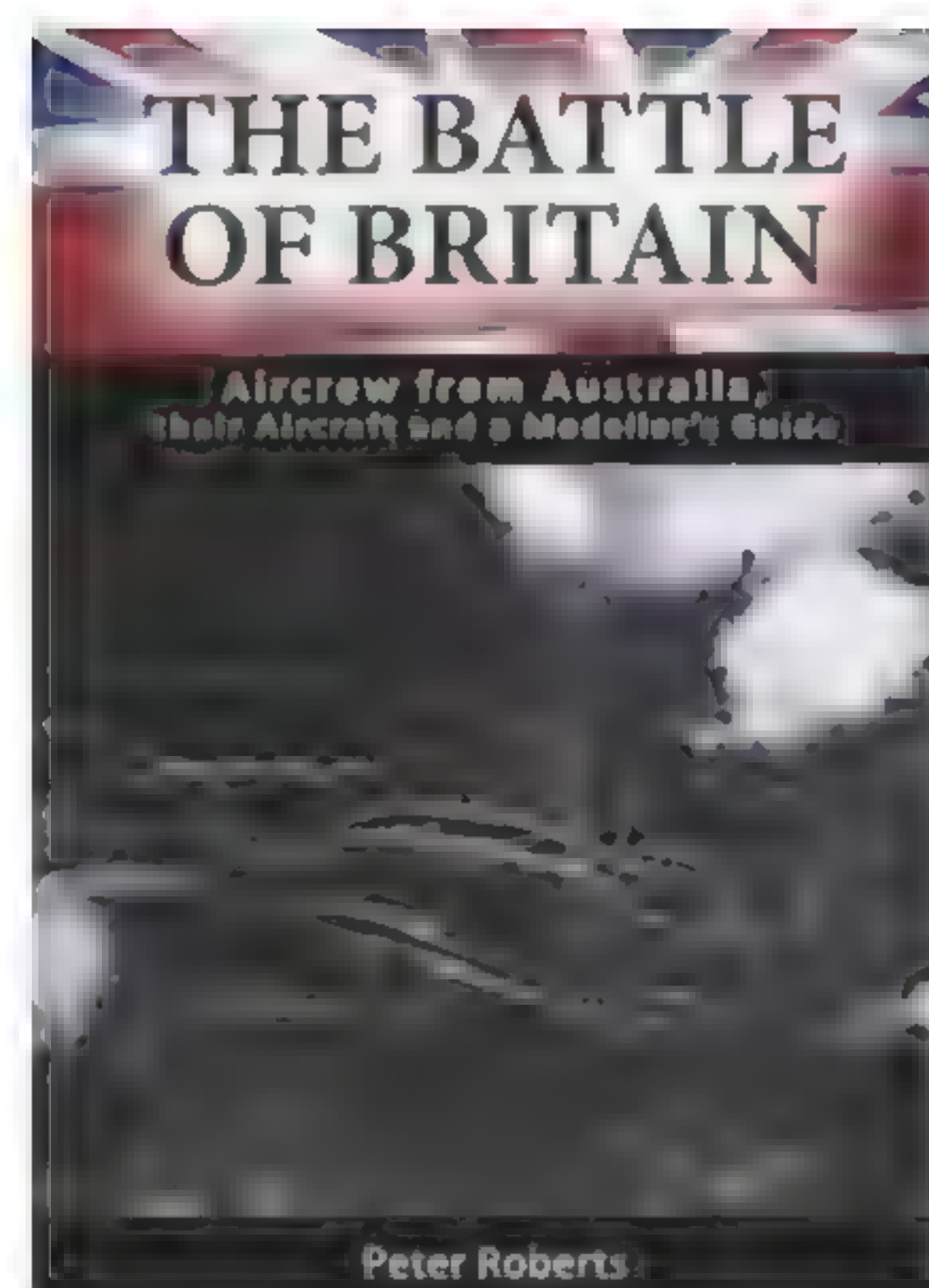


sometimes referred to as the most dangerous aircraft in the world. More than 100 photographs or diagrams help to illustrate this fascinating insight into operating this covert aircraft. This book is a must-have for those with an interest in the dark arts of aerial surveillance and intelligence gathering.

Aussies in 1940

THE BATTLE OF BRITAIN-AIRCREW
FROM AUSTRALIA,
Peter Roberts, Busybird
[www.aviation-bookshop.com],
SBK, ILLUS, 260PP, £29.99

Subtitled *Their Aircraft and a Modeller's Guide*, this well researched book gives a helpful background to the Battle of Britain before describing each of the four main RAF fighters. These are accompanied by helpful detail and sketches of such things as aerials and canopies, as well as the various camouflage patterns and markings. These basic features are supplemented throughout by well selected colour side profiles of aircraft flown by specific pilots. The bulk of the narrative concentrates on biographies of the 36 Australians or men with Aussie connections who flew in the conflict. Bringing



this together has been no easy task and the author is to be congratulated on the tenacity of their research. Many of the names are not well known, making this book a particularly valuable addition. The narrative will be welcomed not just by Battle of Britain aficionados but also the wider modelling fraternity. An enjoyable and very useful addition to the enthusiast's bookshelf.
Andrew Thomas

Inter-war fighters

BEFORE THE STORM - RAF
FIGHTERS 1920-1939,
Martin Derry & Neil Robinson,
www.pen-and-sword.co.uk,
SBK, ILLUS, 104PP, £17.99

This beautifully produced book is a delight. The inter-war period was the most colourful in RAF history, with its aluminium painted fighters often bedecked in bright squadron markings, until the shadow of war saw the introduction of drab camouflage. While there is some very helpful text contextualising the development of aircraft colours and markings, the bulk comprises a wide selection of well reproduced photographs accompanied by detailed captions. These are complemented by 51 well selected colour side profiles together with top views illustrating upper wing markings or camouflage



patterns. The reader is spoilt for choice in this visual feast, with Bulldogs, Siskins, Gauntlets and Demons to the fore, though the prize probably goes to the Hawker Demon squadrons. Whether your taste is for bright colours or the more war-like hues of early Hurricanes and Spitfires, there is much to please the eye. A visual treat to delight the general reader and, particularly, the modeller.
Andrew Thomas

Great War calendar

THE GREAT WAR AVIATION
SOCIETY CALENDAR 2025,
www.greatwaraviation.org,
UK £12.50 (overseas £17,
not available in EU)

Continuing an annual tradition raising money for a good cause, the Great War Aviation Society has once again excelled itself with its latest calendar. It highlights the artwork of 12 superb artists, all offering their own visual interpretation of the early days of air warfare. There's a wonderful contrast of styles and subjects, and each buyer will have their favourites. January features the superb work of frequent *FlyPast* contributor Antonis Karidis, and our other top picks include Ron Cole's gloriously atmospheric



depiction of Australian pilot Capt Arthur Cobby flying Sopwith Camel E1416 into combat at low level (July). We also appreciated the near photo-sharp realism of the August entry, Marek Rys' illustration of an Albatros W.4, and the lovely colours used by Darryl Legg in June's image of a Pfalz D.IIIa in battle. **Steve Beebee**

Joy of flight

SKY STORIES 4,
Dave Unwin,
www.grubstreet.co.uk,
SBK, ILLUS, 235PP, £9.99

From getting to grips with a B-25 Mitchell to a three-quarter scale SE.5 reproduction, frequent *FlyPast* correspondent Dave Unwin presents another evocative compilation of flying tales. Many offer insight into the intricacies of flying various aircraft, while some describe the different takes on the world that can be gained from up high, especially when viewed from the author's beloved Jodel D.9 *Buzz*.

As always, Dave writes with a rarely seen authority on the subject, but also takes care not to bombard the more casual reader with jargon. Flying is such

a personal experience that thoughts on a variety of subjects may manifest themselves. During one such flight, he contemplates how the world might have looked millions of years ago: how an ichthyosaurus might have looked up from what is now the North Sea to glimpse a pterosaur that would have measured up to *Buzz*.

Indeed, *Sky Stories 4* is at its intriguing and accessible best when capturing the wide-eyed wonder of flight – in one section Dave describes flying in a Ka-8 seemingly in formation with a bird of prey: "I've soared with buzzards dozens of times, but I've never felt more 'connected' to one than I do now. I swear he's not just looking at the sailplane, he's looking at *me!*" You almost feel part of it yourself.

Steve Beebee



Navigator's tale

GESTAPO HUNTER – WARTIME
CAREER OF TED SISMORE,
Sean Feast,
www.grubstreet.co.uk,
HBK, ILLUS, 208PP, £25

In this well produced book, the author relates the remarkable wartime career of Sqn Ldr Ted Sismore DSO DFC** AFC, who was thought to be World War Two's most decorated RAF navigator. It relates the life of an unassuming man who participated in some notable episodes. Starting on hazardous low-level Blenheim sorties, he's most associated with the Mosquito day bomber, hitting headlines as lead navigator on the first daylight raid on Berlin, disrupting a speech by Göring intended to mark



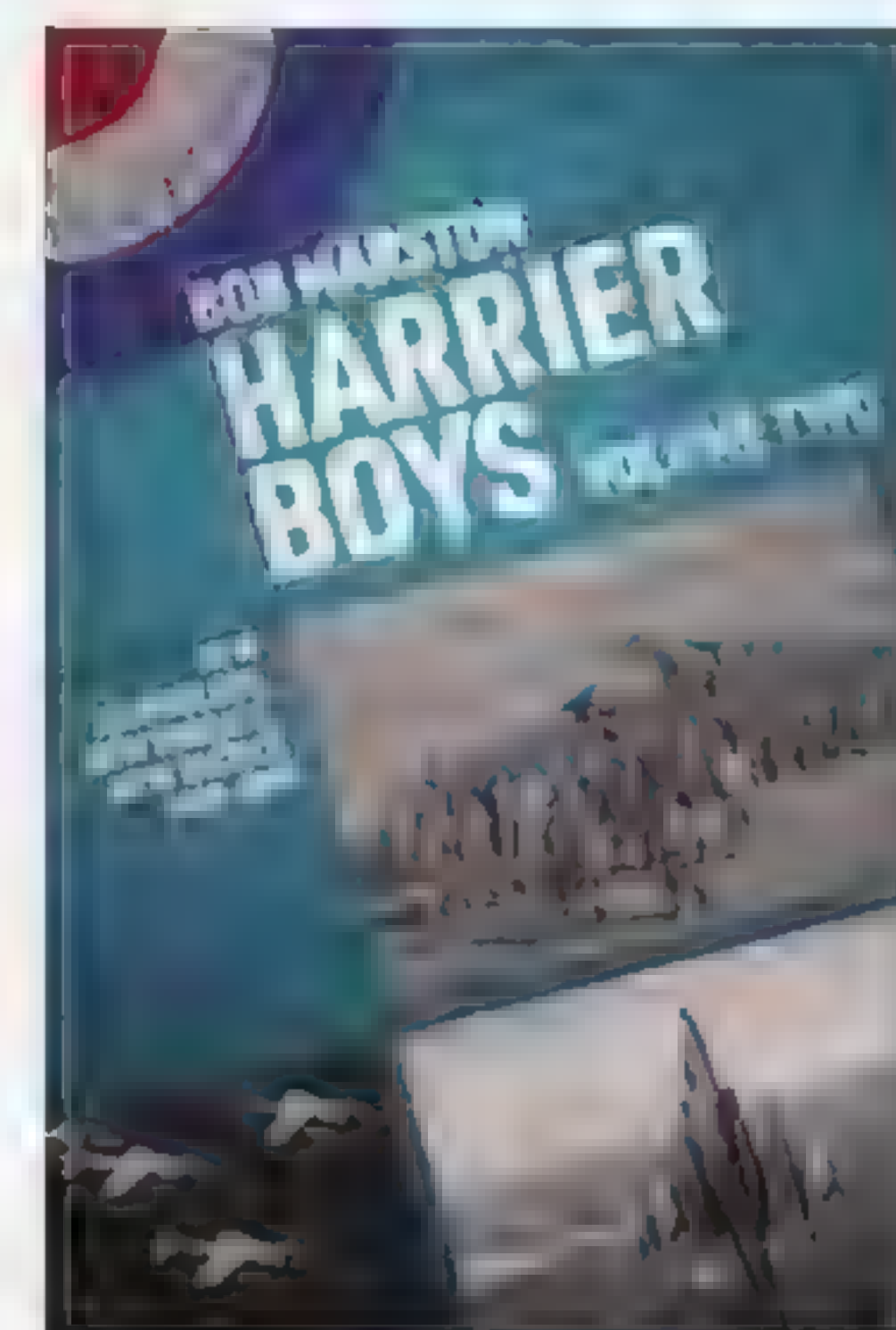
the 10th anniversary of Nazi power in Germany. This was just the first of many high-profile sorties, some specifically targeting the Gestapo secret police, including an attack on their HQ at Odense, Denmark. This engaging read also covers Sismore's post-war career which included a record flight from London to Cape Town in 1947.

Andrew Thomas

Harrier finale

HARRIER BOYS VOL 2,
Bob Marston,
www.grubstreet.co.uk,
SBK, ILLUS, 224PP, £14.99

This modestly priced softback is worth every penny if you missed it in its original hardback form. The author moves the Harrier story on from 1990 up to the type's early withdrawal from service in 2011, collating exciting stories from these later years. Accounts are mainly drawn from periods of sustained operational activity, such as aerial policing over the Balkans and Northern Iraq, the bombing campaign in Bosnia and Kosovo, and the intervention in Sierra Leone. The campaigns in Iraq and Afghanistan also



feature. This is a terrific read that places the reader right in the cockpit of the VTOL jet classic, whether it is landing a Sea Harrier on the pitching deck of a carrier, dodging enemy fire over Kosovo or dropping precision weapons on a Taliban strongpoint in Helmand. *Harrier Boys Vol 2* will interest both fans of the legendary Harrier and the more general reader.

Andrew Thomas

LOST WITHOUT TRACE

The disappearance of Major Alton 'Glenn' Miller remains one of the greatest mysteries of World War Two. **Chris Coot** studies the facts and fiction of December 15, 1944





orale is as fundamental to a military's ability to fight as the ammunition in its weapons. For thousands of years armies across the world have tried and tested countless means to keep their troops happy and supported. During World War Two the United States and Great Britain made extensive use of musicians and actors to visit those fighting at home and abroad.

One such musician employed by the Allies was big band conductor

Glenn Miller who, along with his orchestra, proved to be one of the most successful artists of the 20th Century.

Miller enlisted into the US Army on September 8, 1942, with orders to attend the Seventh Service Command, Omaha, a month later. Upon completion of his training and orientation, now Captain Miller, was posted to the Army Air Forces (AAF) Technical Training Command, Knollwood Field, North Carolina. Here he was tasked with screening and grading personnel

for assignment to AAF bands across the United States.

Over there

In early May 1944 General Dwight D Eisenhower contacted Washington to request the Army Air Forces Training Command Orchestra, directed by Miller, be transferred to Britain to provide entertainment for the residing US forces. The request was approved and Miller, accompanied by radio producer Sgt Paul Dudley, travelled by air to London on June 19. The

Left
Keith Hill's
evocative painting
'One Last Look'
captures the
essence of
December 15,
1944. Reports
suggest the
pilot kept the
Norseman's engine
running while on
the ground at
Twinwood Farm

www.aviation-artist.com/product-category/collections/the-twinwood-collection



Below
In December 1944, Glenn Miller, arguably the most famous musician of his day joined a flight across the English Channel and disappeared into the mists of time. He and the two other men onboard the Norseman aircraft remain 'missing'
Getty images

orchestra made the transatlantic crossing aboard the ocean liner turned troop ship RMS *Queen Elizabeth*.

Once established in Britain, the band began a series of radio broadcasts and a tour of US Eighth Air Force air bases and facilities. The band was temporarily housed at Sloane Court, London, prior to their move to Bedford – only a few days later the location was hit by a V-1 'Doodlebug' flying bomb. Despite his band proving to be a very valuable source of morale for civilians and military personnel alike, Miller, now a Major, was keen to also have an impact on the liberated continent.

Mysterious disappearance

Miller and his band received orders to travel to Paris on December 16, 1944, to begin a six-week tour across northern Europe, recaptured by the Allies. Due to his administrative assistant, Lt Donald Haynes, being unable to complete the required housing and messing arrangements ahead of their arrival (reportedly owing to his detention for dereliction of duty) Miller had no choice but to seek earlier travel to France.

He had a seat booked on a scheduled Douglas C-47 Skytrain service from Bovingdon, Hertfordshire to Paris-Orly on December

14, but the flight was cancelled due to adverse weather. Flights were not set to resume until the weather improved on December 17, meaning that Miller would miss his orders to arrive in Paris.

The other passenger booked to travel on Miller's C-47 flight was Lt Col Norman Baessell of the US Eighth Air Force whose civil engineering background made him a senior advisor concerning the construction of airbases. He too, was keen to fly to France.

During a conversation over lunch, Lt Haynes learned that Lt Col Baessell planned to fly from RAF Twinwood Farm near Bedford to Villacoublay airfield in the southwestern suburbs of Paris. When Haynes mentioned Miller's predicament, Baessell offered to take him along to France and give him a lift to Paris. Miller was of course delighted and accepted the offer.

To transport Baessell to and from visiting locations, he was assigned a dedicated pilot – F/O John Stuart Morgan. Trained in Canada before transferring to the US Army Air Force, Morgan did not yet hold a full Instrument Rating (IR) and was therefore not permitted to fly in adverse conditions.

The weather forecast for the morning of December 15 offered a mixed bag of conditions but the visibility wasn't as foggy as is often depicted. At Twinwood overcast cloud at or below 2,000ft was predicted, along with a southerly 5kt wind and a possibility of light freezing rain and fog. Over the English Channel the cloud cover may vary from 6/10ths to 10/10ths and reach as high as 24,000ft. Baessell decided the weather was good enough to attempt a crossing and notified Morgan of his intentions.

Morgan was waiting with his aircraft at RAF Alconbury in Cambridgeshire. Morgan awoke on the morning of December 15 and requested Noorduyn UC-64A Norseman 44-70285 to be prepared for departure to





Twinwood to collect Baessell and Miller.

The Norseman, which first flew in November 1935, is a Canadian 'taildragger' bush plane. Powered by a single 600hp Pratt & Whitney R-1340-AN1 air cooled radial engine, its high-wing and short, widely spaced main undercarriage configuration made it well-suited for the type of short-field 'ops' that were often required by the military. In wartime service it was typically flown by a single pilot and could carry up to ten passengers over about 800 nautical miles.

Conditions at Twinwood that morning were poor; the predicted cloud base was much lower at 250ft and freezing rain/fog was present, although the conditions were gradually improving. Much of the Paris area was anticipated to be under Instrument Flight Rules (IFR) conditions for the rest of the day. Owing to the forecasted conditions, Alconbury's traffic officer, Lt Donald Hope, refused to grant Morgan an IFR clearance to Villacoublay. Morgan lacked a full Instrument Rating (he had received instrument training but did not yet have the required hours for the rating), though was familiar with crossing the Channel.

The weather at Alconbury permitted CFR (Contact Flight

Rules – an early precursor to Visual Flight Rules in use today which required the pilot to always remain in sight of the surface) flights but the 'window of opportunity' to depart was closing rapidly.

Twinwood's weather situation had improved over the course of the morning and so rather than risk being stuck at Alconbury, which was set to close at 1330hrs, Morgan chose to make the short 17-mile trip under CFR. With no flight plan filed with the Army Air Communications Service at Bovington, no one outside of the trio knew of the plan to continue onward to France.

Upon landing at Twinwood, Morgan reportedly left the Norseman's engine running to avoid officially ending the flight. Continuing would have required an onward clearance which of course, would not be granted. However, if Morgan had elected to stop and check the latest weather, he may have been discouraged from continuing the journey. Cloud over the Channel was forecast down to 1,000ft. Fog and freezing rain were also expected.

Alas, Baessell and Miller climbed aboard and at around 1355hrs the aircraft took off bound for France, unbeknown to the controller

“The weather forecast for the morning of December 15 offered a mixed bag of conditions but the visibility wasn't as foggy as often depicted”



Left

The other passenger travelling on the ill-fated Norseman was USAAF Lt Col Norman Baessell, an engineering officer specialising in airfield construction
Dennis Spragg/
Glenn Miller
Collections,
University of
Colorado Boulder

Left

Given the forecast icing conditions, was the Norseman's pilot, FIO John Morgan, pressured to perform the cross-Channel flight against his instinct or did he believe the journey was within his and his aircraft's capabilities? It's a question that can never be answered
Dennis Spragg/
Glenn Miller
Collections,
University of
Colorado Boulder

Right
Upon their arrival
in Britain, the
members of
Glenn Miller's
orchestra were
assigned to the
Eighth Air Force
Service Command
Headquarters
at Milton Ernest
Hall near Bedford.
Today the Grade
I listed building is
a care home
John M/Geograph/
Creative Commons
CC BY-SA 2.0



“Maj Gen Ray Barker sent a terse telegram to the units concerned asking: ‘How the hell did we lose Glenn Miller?’”

Right
The Norseman
had proved to
be a reliable
aircraft even
in demanding
circumstances. The
type's suitability
for rough field
operations led to
military orders
and USAAF
service as the
UC-64
Andy Hay/
Flyingart.com

at Twinwood. None of three on board, nor Lt Haynes, officially reported the flight and so Supreme Headquarters Allied Expeditionary Force (SHAEF) was unaware Miller was en route to France.

When Morgan failed to report in to the 35th Air Depot Group, its Adjutant, Capt Ralph Cramer prepared a missing aircrew report. Under the impression Morgan would report his arrival directly at his final destination, he neglected to pass this information to Eighth Air Force Service Command (VIII AFSC). When completing the report, Cramer incorrectly guessed Morgan's final destination was Bordeaux/Merignac although there was no VIII AFSC facility present there, when in fact he should have noted Brussels/Melsbroek where a destination and repair facility was located.

It was only when Haynes and the rest of the band arrived at Paris Orly in their C-47s on December 18 – and found Miller was not already there – that it was made apparent to SHAEF that the band leader was missing. Haynes had himself been unable to travel due to the weather and

could not contact Miller as the Allied telephone network had been overwhelmed following the German offensive in the Ardennes – the so-called ‘Battle of the Bulge’.

Upon learning of Miller's disappearance, SHAEF Assistant Chief of Staff and head of G-1 (Personnel), Maj Gen Ray Barker, sent a terse telegram to the units concerned asking: “How the hell did we lose Glenn Miller?”

His urgent message triggered immediate reactions in terms of both rescue attempts and report writing.

A frantic aerial search for the missing aircraft began. Despite leaving Twinwood without a filed flight plan, it was likely Morgan would have followed the documented air-traffic routing which guided aircraft out of London and towards Maidenhead. Here he would have changed track



to the south-east until reaching Langley Point and then over the Channel to St Valery or Dieppe. These routes were well used by transport aircraft heading to the continent and were equipped with a series of non-directional beacon (NDB) navigation aids. Using this method, Morgan would have no requirement to speak with any air traffic control unit along the journey. Despite an extensive search, no trace of the aircraft was ever found.

Probable cause

Unexplained events regarding celebrities, especially those concerning anyone of such international fame, inevitably attract attention, welcome and otherwise, and Miller's is no exception. Remarkably, the Nazi propaganda story that Miller had died of a heart attack in a French brothel and his disappearance was a cover-up – broadcast by the Germans after Miller's death had been announced by the US authorities – is still often repeated, even though it is obviously false.

Then there's the tale that Miller never boarded the aircraft, having been killed a day or two earlier during a 'secret mission to end the war'. The reality is that some 15 eyewitnesses saw him board the Norseman. Eliminating the

sensational nonsense leaves the more mundane but realistic. The most likely cause of the aircraft's disappearance is, like many aviation incidents, due to a combination of factors known as the 'Swiss cheese model'. Facing the pressure of getting his reporting officer and Miller to France, Morgan ignored glaring weather warnings and pushed on into poor weather.

Flying through icing conditions in an aircraft which lacked any deicing capability, or had been inappropriately anti-iced may well have been the key failing. The low temperatures and high relative humidity over the Channel created ideal conditions for the formation of icing.

Research by Dennis Spragg, director of the Glenn Miller Collections within the American Music Research Center at the University of Colorado Boulder, suggests disorientation, potentially as Morgan attempted to remain in sight of the water and out of cloud and icing leading to a carburettor heater failure as the probable causes of the crash.

In low temperatures, when rain contacts an airframe it freezes, degrading lift and increasing weight. Carburettor-fed engines, like those fitted to the Norseman, are also susceptible



Left
Having arrived by staff car, Maj Miller reputedly sat in this corner of the control room within RAF Twinwood Farm's watch tower as he awaited his flight to Paris
KEY-Tom Allett

to icing. Moisture freezes inside the Venturi tunnels (part of the fuel flow system), thereby blocking them and starving the engine of fuel. To counter this, aircraft are fitted with carburettor heating which bleeds hot air from the engine through the Venturi to clear any ice buildup. However, without locating the wreckage, any other type of mechanical or structural failure cannot be ruled out.



Right
SHAEP
Assistant Chief
of Staff, and
head of G-1
(Personnel),
Maj Gen
Ray Barker,
who was
responsible
for SHAEP
Broadcasting
and related to
Miller through
marriage,
sent a terse
telegram
demanding
answers. It
simply read:
"How the hell
did we lose
Glenn Miller?"
Dennis Spragg
Glenn Miller
Collections,
University of
Colorado Boulder



Given the Norseman's steel frame overlaid with wood and fabric construction, it is unlikely the aircraft would have remained intact during a high energy water

landing. If the aircraft did indeed survive a ditching attempt, the aircraft's heavy engine may well have flipped it onto its back. If Miller, Morgan and Baessell did survive the impact, they may have been able to cling to floating wreckage but given the low winter temperatures, survival in the water without specialist equipment would be measured in minutes. With no search and rescue mission launched for more than 24 hours, sadly there was no chance the three missing Americans would be found alive.

Other theories

In more recent times one of the most compelling alternative theories to explain Miller's disappearance is that the aircraft

was brought down by so-called 'friendly fire'.

In 1984 a former RAF navigator, Fred Shaw, stated he believed Avro Lancasters of 3 Group were responsible for the loss of the Norseman. His aircraft, NF973, of 149 Squadron, was one of 138 returning from an aborted bombing mission over Germany and was in the process of jettisoning their bombs over the Channel before returning to their home bases. The aircraft had been used to bomb marshalling yards in Siegen in a combined raid with the USAAF on Hanover and Kassel.

As the Lancasters were dropping their unused ordinance, consisting primarily of 4,000lb 'Cookies', Shaw claimed to have seen a Norseman passing below the

"Flying through icing conditions in an aircraft which lacked any deicing capability, or had been inappropriately anti-iced may well have been the key failing"





formation and subsequently crash – presumably because of either being stuck directly or from concussion waves caused by bombs hitting the water.

However, research determined that the Lancasters could not be at fault for downing Miller's aircraft. Errors in reported times (Greenwich Mean Time vs British Summer Time) meant that Shaw's aircraft and formation had completed

their bomb jettison before the Norseman had even approached the Channel. NF973 departed its home base of RAF Methwold at 1137hrs GMT+1 and was back on the ground at 1420hrs.

Shaw's formation may indeed have encountered light aircraft passing below them, but it is more likely to have been a ferry flight of Stinson L-1 Vigilant observation aircraft. An article in the February 1, 1945, edition of *Stars and Stripes* titled *On a Wing and Spray* retold the story of how the aircraft, which were crossing the English Channel supported by a Supermarine Walrus, encountered jettisoned bombs between 1300hrs and 1315hrs DBST. This time window matched RAF records of when the Lancasters completed their bomb jettison – between 1304hrs and 1321hrs GMT+1.

Another 'Miller-related' story emerging in the 1980s was that of a fisherman working his nets off the coast at Portland Bill. He claimed to have snagged and trawled a light aircraft in 1987. After seeing an image of a Norseman many years later, the fisherman believed he had found the same type of aircraft. However, some elements of the story discredited the theory it was Miller's aircraft – for example the fisherman believed parachute cords appeared to be streaming from the door yet Miller's aircraft did not carry any parachutes.

Spotters' logbook

An interesting snippet of information came into the public

domain in 2012, 67 years after the Norseman disappeared, when Sylvan Anderton brought his late brother Richard's spotter's logbooks to the *Antiques Roadshow* television programme. Sylvan revealed how, during the war, his then 17-year-old brother Richard Anderton was employed at Woodley airfield near Reading. Richard logged all the aircraft he saw daily, noting the aircraft type, their direction of flight and estimated altitude. For decades, Richard's logbooks had lain forgotten in a storage box in his home but when he died, the task of sorting out his possessions fell to Sylvan. Within the two logbooks Sylvan discovered a newspaper cutting about Glenn Miller. On the page where the cutting was placed the logbook contained an entry for the fateful date, December 15, 1944. It noted a UC-64A Norseman passing to his east below the cloud base heading in a southeasterly direction. Records suggest that no other UC-64 Norseman was airborne that day, so Richard's long-lost note appears to confirm that pilot John Morgan took what was essentially the most direct route south that avoided flying over London. The logbook has since been donated to the Miller archive at Colorado Boulder University.

Today, 80 years after the event, the question of what caused the December 1944 tragedy appears resolved; the only remaining question being about where it came down. Although the relatively frail steel tube, wood, and fabric construction of a Norseman aircraft means it is very unlikely that anything apart from the engine could still exist beneath the waves, there's the tantalizing thought that one day it might be found and identified by its engine block numbers. ●

FlyPast would like to thank Robert Allen, Keith Hill and Dennis M Spragg for their invaluable help in producing this article.

Left
Today, the former RAF Twinwood Farm watch tower is the focal point of the Glenn Miller Museum, which is a segment of the wider-focused Twinwood Aviation Museum. During FlyPast's recent museum visit (see page 44) an articulated flatbed trailer occupied the approximate spot where Glenn Miller boarded the UC-64A Norseman. Twinwood Aviation Museum.

Left
Twinwood – The Legend Artist Keith Hill captures the moment USAAF UC-46 Norseman 44-70285 departs Twinwood Farm's main (southwest/northeast) runway for its date with destiny. There are no known photographs of the ill-fated aircraft so its precise colour scheme can only be estimated. Given the mid-December date it is possible any 'invasion stripes' it may have worn had been removed by the time of its final flight. www.aviation-artist.com/product-category/collections/the-twinwood-collection/

Twinwood Farm: emerging from the mists of time



In 2002, the watch tower became the first museum building to open at the former RAF Twinwood Farm, but the site has expanded considerably over the last two decades All Key-Tom Allett unless stated

If RAF Twinwood Farm is remembered it is because it was where the world famous American band leader Glenn Miller hitched his ill-fated flight on December 15, 1944. Opened in 1941, the airfield was essentially a night-fighter training airfield that accommodated a series

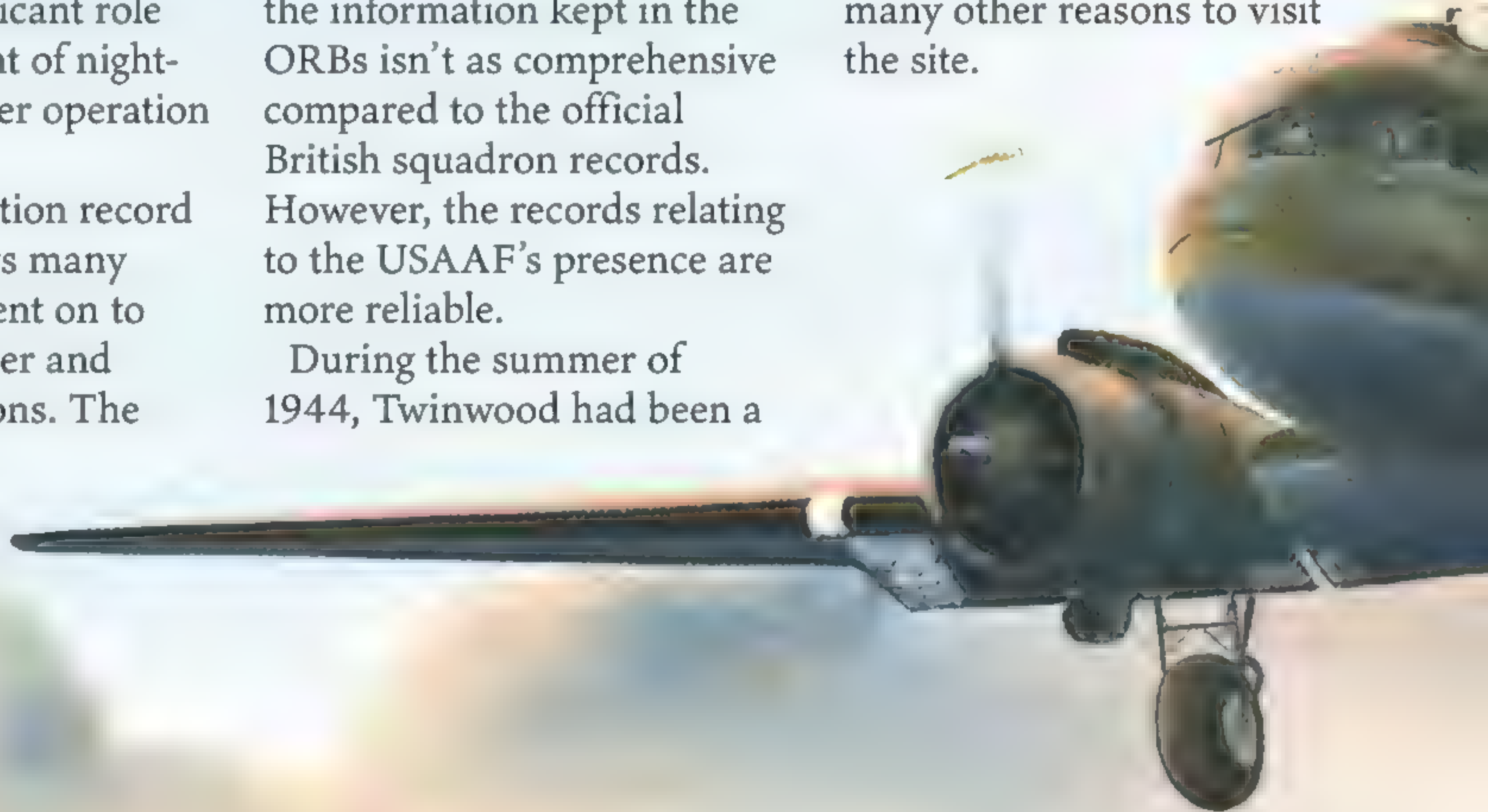
of RAF units for relatively brief spells. While No.51 Operational Training Unit is not generally well-known, it did play a significant role in the development of night-fighter and intruder operation tactics. The unit's operation record book (ORB) shows many of its graduates went on to fly with Beaufighter and Mosquito squadrons. The

Although infamous for one day in 1944, RAF Twinwood Farm and its aviation museum should be remembered for so much more. **Tom Allett** paid a visit

USAAF's Bristol Beaufighter-equipped 415th Squadron honed its skills at Twinwood before flying to North Africa to become one the most successful American night-fighter units of the war. All told, about 1,000 personnel were on site at any one time, but due to the transient nature of a training base most were only there for six to eight weeks before moving on to front line units. Unfortunately, the information kept in the ORBs isn't as comprehensive compared to the official British squadron records. However, the records relating to the USAAF's presence are more reliable.

During the summer of 1944, Twinwood had been a

convenient pick-up point for Miller's orchestra, billeted at the nearby Milton Ernest Hall, away from the dangers of 'buzz bombed' London. USAAF C-47s routinely flew to the airfield to take the band to the next location on their tour. The tragedy of Miller's unexplained disappearance has guaranteed Twinwood's place in history as the starting point for one of the greatest mysteries of the war, but today there are many other reasons to visit the site.



Two days after Glenn Miller disappeared, two C-47s of the 315th Troop Carrier Group from Spanhoe, flew into Twinwood to pick up the rest of the band. Keith Hill's 'Twinwood Approach' captures the scene. Keith Hill www.aviation-artists.com/product-category/collections/the-twinwood-collection/



A plaque commemorates the watch tower's 2002 reopening



The ground floor of the watch tower is dedicated to Glenn Miller's memory

Miller Museum

The Twinwood Aviation Museum (TAM) emerged from an original idea by Connie and Gordon Richards to create a Glenn Miller tribute on the former airfield, using the wartime watch tower as the central point. As a child during the war, Connie had seen Miller's orchestra perform and

developed an interest in the band leader and the whole 'Americans in the wartime UK' scene. She contacted the owner of the former RAF Twinwood Farm site, David Wooding, who gave the project the 'green light.'

Robert Allen, one time leader of the Northamptonshire Airfields and Aircraft Research Group that specialised in aviation archaeology digs in the surrounding area, is now TAM's curator. He explained:

"To begin with it was a struggle to raise the funds to create the original museum. The tower was in relatively good condition compared to some other wartime examples, but it was still essentially derelict, so it was a big undertaking. Thankfully, David Wooding stepped in to fund the restoration project."

The Glenn Miller Museum was opened on June 2, 2002, by Beryl Davis, who had been discovered by Miller and was one of the last of the golden

age of wartime big band singers still performing at the turn of the millennium.

Aviation focus

Upon hearing of the watch tower's restoration, Robert Allen sought David Wooding's permission to create an aviation museum at the site to sit alongside the Miller Museum. He recalled: "David was very supportive. We started in a very small way using the archaeological wreckage





The immaculate RAF corporal's greatcoat hanging on the wall, accompanied by gas mask bags and 'tin hats' makes it appear their owners are still on duty

we had and the associated airmen's stories that go with that. We quickly realised we needed to appeal to more than just Glenn Miller and aviation archeology fans and draw younger people in, so we added a toy museum [complete with a working model railway diorama with a crashed Heinkel III and victorious Spitfires!] and expanded the wartime exhibits to include an element of both world wars, especially the Home Front."

Today, the lower floor of the tower contains the Glenn Miller exhibition, which contains mannequins, uniforms and many other items of memorabilia, including a saxophone reportedly owned by a member of Miller's wartime orchestra. The ground floor also contains an exhibition of Keith Hill's original paintings. Keith has produced some of the most memorable images of Miller's ill-fated Norseman and, as he was appointed an official artist of the US Eighth Air Force, it encompasses several of the Mighty Eighth's most famous aircraft.

As you walk up to the tower's first floor there is a definite shift in atmosphere as you arrive in a wartime scene. You step into something that still has the ambience of a wartime ops room. An immaculate RAF corporal's greatcoat hangs

on the wall, accompanied by gas mask bags and 'tin hats', making it seem as if their owners are still on duty and have just popped out for a well deserved tea break.

Flight office

Despite relatively limited resources, one great advantage of the site is the number of original wartime buildings that have survived in structurally sound condition. The largest is the Flight Office, inside which many of the original department titles still survive on the office doors – each room now transformed into individual exhibition spaces. The 200ft single-storey building contains the aircraft



A Miles Martinet canopy was acquired from the Wartime Aircraft Recovery Group at Sleaf airfield

archaeology exhibitions and 1940s street scenes, while many of the offices off the main corridor, such as the medical room, are decorated with the appropriate kit of the day. Next door, the wartime Armoury now serves as the Motor Transport (MT) area, where volunteers maintain vintage Allied and Axis vehicles.

The site also has World War One exhibits housed in the airfield's telephone exchange and WAAF toilet block. The former has a battlefield diorama and a more domestic element featuring newspaper cuttings, letters home and the dreaded telegrams, while the latter has been transformed into

a period First Aid post. Elsewhere on site, a World War Two fire station has been recreated, billets have been regenerated to display their original appearance and some of the site's Stanton shelters are used to house other displays.

At the site of the airfield's main entrance in wartime, known as the Baulk, the former hospital, sergeant's mess, mess halls and ablution block are remarkably well preserved and could provide further exhibition space. Nearby there is something even rarer: an original wooden mast that once held the station's radio aerials; its 'twin', which had stood alongside the watch tower, ➤



After Glenn Miller, aircraft archaeology is the TAM's second strongest theme. Here, the wreckage of an OTU Mosquito honours its crew

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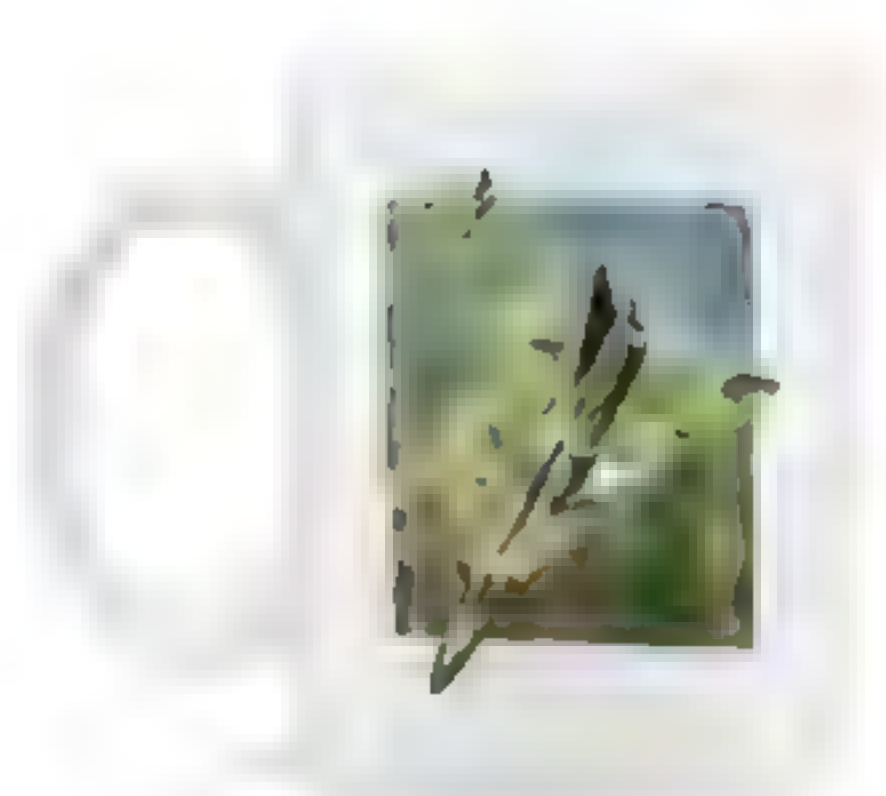
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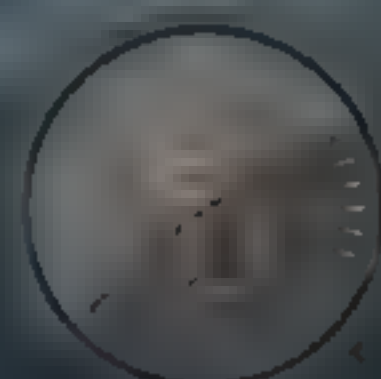


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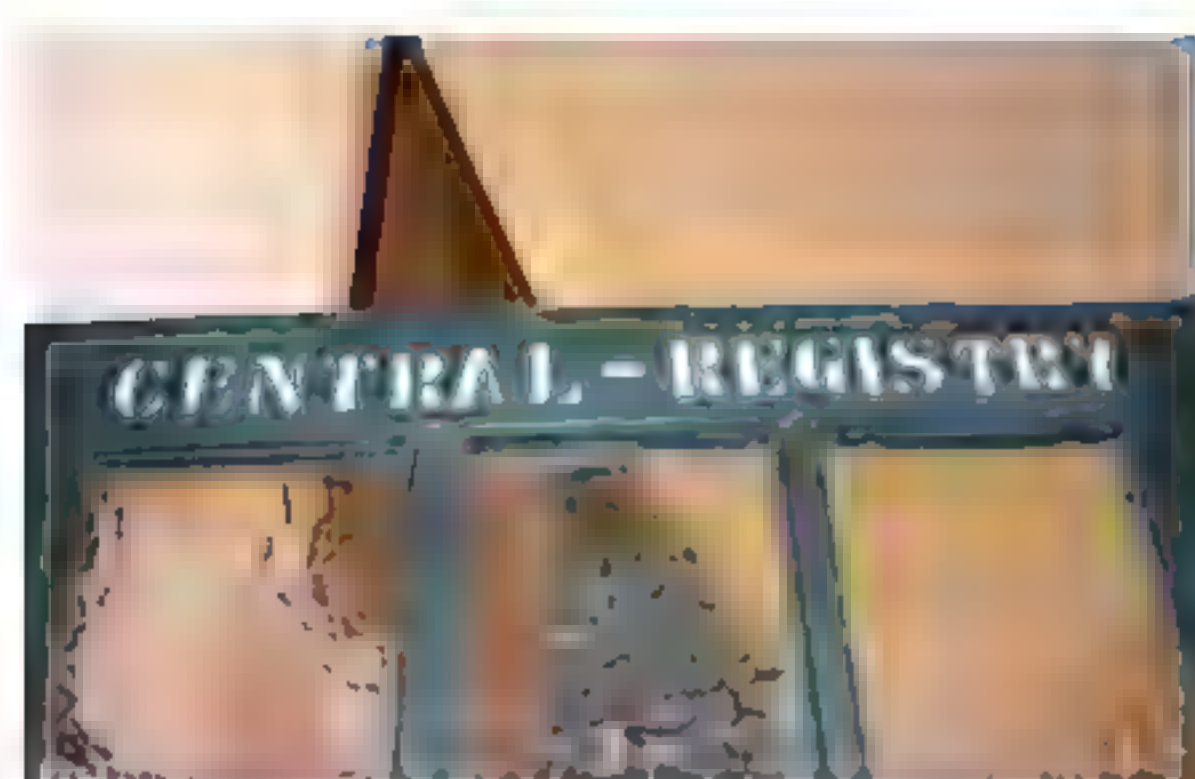


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Music Festival

One of the factors that helps keep Twinwood Aviation Museum in business is the annual open air vintage music and dance festival held at the former airfield site in August. Launched in 1989 as the Glenn Miller Festival, it has since expanded to encompass other musical genres. In 2007, the name changed to the Twinwood Festival and today's entertainment spans music from the 1930s to the 1970s. It draws thousands of people to the site and the museum is open to festival goers on the Sunday of the three-day event. Robert Allen explained: "We have to close the museum on the Sunday before and after the festival to allow the various marquees to be built and then taken down again, but it brings in thousands of visitors and all the feedback we receive from the Sunday of the festival is positive."



The wartime Flight Office is so well preserved many of the original department titles still survive on its doors

was demolished decades ago.

Robert noted: "There are few other wartime sites which still have the quantity of wartime buildings we have here. Elvington is perhaps the most similar and has the same kind of watch/control tower, but it is amazing how these buildings, which

were never intended to be permanent structures, have survived for 80 years."

Robert explained that military flying ended in June 1945, although a gliding school operated from the site for a brief time afterwards. Nevertheless, much of the buildings' longevity is due to the farmer who owned the site immediately post-war: "He utilised the buildings as best he could and reportedly defended his land staunchly – chasing off any uninvited visitors with a shotgun! – so there was no vandalism and that's why you still even have the original door signs in place."

Of course, for historic aviation fans, the whole visitor experience is enhanced by the quality of the stories to be seen here. As you would expect for a wartime museum, there is a mixture of tragedy, triumph and even a 'skeleton in the closet' that had a happy ending.

The future

When its restoration is complete, a Frazer-Nash type FN-120 rear turret recovered from a crashed Wellington bomber of the No.6 Gunnery School will join the public displays, and other newly donated items can arrive at any time. The preservation work never stops and the exhibits will doubtless continue to evolve. Robert said: "The Glenn Miller legacy is still very big here. He was the pop star of his day and his music lives on. He left us all something very special. Today there are many people who don't know his name or his story, but when they hear his

famous music being played there is a kind of 'Oh, that's him!' reaction. Everyone, regardless of their age, has heard some of Miller's music at some point in their lives.


"We are pleased with the progress we have made; we've created something that can interest all ages and genders. We work under the banner of the Twinwood Aviation Museum, but we promote the whole site, and it has become increasingly obvious that we will eventually need to change the name to something like the Twinwood Farm Heritage Centre or similar."

Visiting

The Twinwood Aviation Museum is normally open from 10.30am to 4.00pm on Sundays and Bank Holidays from April to September except for closures required around the annual Twinwood Festival in August. Admission is £5 for adults, under 16s go free. Please check the museum's website for up-to-date information: www.twinwoodaviationmuseum.org




VIPs for a day. Wartime Twinwood Farm visitor Dennis Hill (left), meets Glenn Miller's nephew, John Miller, outside the Twinwood Aviation Museum. Keith Hill




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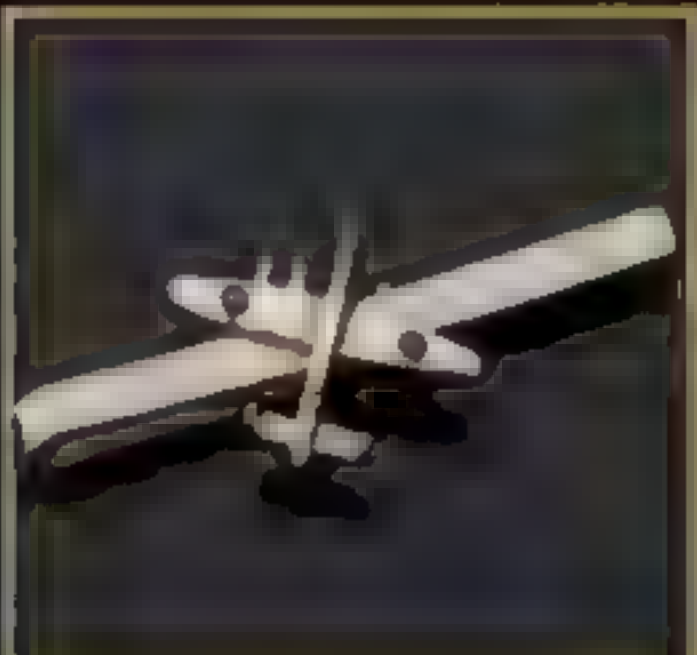
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The 'Battle of the Barges'. Here, Hampdens of 44 Squadron are depicted bombing some of the estimated 1,600 invasion barges being gathered in continental European ports for a potential invasion of Britain in September 1940. Courtesy of RAF Waddington

The Hampden:

Designed to outperform enemy fighters, the Handley Page Hampden was obsolete by the time the fighting began. **David Nicholas** explains

The inter-war bomber designs of the 1930s largely have one factor in common, the rapid pace of aircraft development meant they were outclassed by the time the firing started. Their crews were left with the unenviable task of

taking them into combat and those who flew the Hampden soon learned its limitations.

Development and design

In October 1932 the Air Ministry put Specification B.9/32 out to tender. Its requirements were specific, restrictive and curiously

short-sighted. The main theme of the specification was a need for a twin-engined, medium day bomber of relatively high performance, having the ability to carry a useful war load over a good range at speed. Yet it also specified a minimum range of only 720 miles carrying a 1,000lb



a heroic failure?

bomb load, and stipulated an empty all-up weight maximum figure of 6,000lb – a limiting weight imposed by that year's idealistic Geneva Disarmament Conference. Possible engines for such a proposed bomber were designated to include the steam-cooled Rolls-Royce Goshawk, a powerplant held in high hopes by the Air Ministry at that time.

Although dismayed by the restrictions on weight and

power, several British aircraft manufacturers took an interest in the specification and duly prepared tenders.

At Handley Page of Cricklewood, Dr Gustav V Lachmann, the firm's chief designer and his team started initial work on an all-metal monoplane design. Lachmann, an ex-pilot of the German Air Service in 1914-18 and ex-chief designer for the German Albatros Flugzeugwerke, was strongly

influenced in his ideas for the new bomber by a previous successful design of his own creation, the HP.47 two-seater. Designated HP.52, the new bomber inherited many ideas from its predecessor, including the basic wing planform, and particularly the slender rear fuselage boom which carried the tail empennage. What emerged was a handsome, if functional mid-wing monoplane, accommodating a crew of four, a substantial



Above
The prototype HP.52 Hampden, K4240, made its maiden flight from Radlett on June 22, 1936, piloted by the company's chief test pilot, Major James Cordes. The 'Perspex birdcage' nose was replaced by a rounder, more aerodynamic form on later aircraft
All images Key collection unless stated

bomb bay, and (for its day) an extremely high speed when fully loaded. To achieve such speed great attention had been paid to slimming the fuselage while retaining the necessary maximum bomb stowage compartment.

Following the contemporary Air Ministry belief that well-armed day bombers would 'always get through' and consequently needed no escort on operations, provision was made for each crew member to have a defensive machine gun. The pilot had a fixed gun in the upper nose, while the bomb-aimer/observer was supplied with a movable gun in his lower nose compartment. In the rear dorsal position occupied by the wireless operator was another movable gun mounting housed in a flat-topped, cramped cockpit; while just below him was the fourth gun, operated by an air gunner for rearward and underside defence. Due to the slender fuselage boom, both rear gunners enjoyed an unrivalled field of fire-arcs, amplified for the upper gunner by the adaption of twin fin and rudder endplates for the tail assembly. Described initially by its makers as a 'fighter-bomber', the HP.52's defensive armament had an overall major defect – none of the guns were power-operated. Due to the fuselage's ultra-slim layout, contemporary power-operated gun turrets could not be installed. It was a defect which was to prove fatal in the crucible of actual war

operations in later years.

On the credit side of the design was the capacious bomb bay, capable of carrying any contemporary heavy bombs up to a maximum load of nearly 4,000lb total weight; and for its day an astonishing speed range from 73mph landing speed to a maximum speed of over 260mph. Such a variance was achieved by the installation on the wings of extensive slots, a Handley Page speciality. A further 'bonus' which became evident in actual flight trials later was the design's ease of handling and superb manoeuvrability. Sitting high, with an unmatched field of vision, the pilot was able to handle the bomber almost like a fighter.

Exemplifying this asset are the remarks of one Hampden pilot who, in 1940, at Aston Down OTU, engaged two Spitfires in a friendly 'dogfight': "...both Spitfire pilots were amazed and had to pull out all the stops, and even then, had great difficulty in getting even a passing sightline on me."

The official tender conference of May 29, 1933, finally accepted two contenders for the original specification – the Vickers Type 271 (later immortalised as the Wellington) and the HP.52 – and gave both firms the go-ahead in September of that year to produce prototypes. Fortunately, in mid-1934, the Geneva Disarmament Convention was finally abandoned (or ignored) by all participating nations, with the result that both Air Ministry and the manufacturers were able to revise ideas on engines, upping weights to more ambitious parameters. Handley Page accordingly abandoned any use of the ill-fated Rolls-Royce Goshawk engine and chose Bristol Pegasus radials for their design. The overall effect was to delay production of the first HP.52 prototype and it was not until mid-1936 that it emerged. Serialled K4240 and painted (for unknown reasons) in a colour variously described as 'glossy olive green', 'muddy grey-green' and other less complimentary terms, the first prototype made its initial flight from Radlett on June 22,

Right
Hampden I P2062 is pulled out of its English Electric Samlesbury hangar ready for its first flight on February 22, 1940. Delivered to 14 OTU at RAF Cottesmore, it crashed on March 31, 1941, claiming the lives of its four crew



1936, piloted by the company's chief test pilot, Maj James Cordes. Five days later it took its place in the New Types Park at the 17th Hendon Air Display for public viewing.

Fitted with two Bristol Pegasus PES(a) nine-cylinder radial engines of 815hp, fitted with one-stage blowers and driving three-bladed de Havilland controllable pitch propellers; in outline the first prototype looked rectangular, almost like a metal box with wings. The front nose compartment resembled a Perspex birdcage, while the dorsal gunner's cockpit cover was a somewhat cramped, squarish cupola. Immediately noticeable was the vast, sharply tapered wing planform – derived, as noted, from the HP.47 design – and the extremely slender tail-carrying fuselage boom. Primary flight tests went well, despite several minor mishaps. These included the loss of a propeller in flight (which narrowly missed decapitating the pilot), and the occasion when it made a wheels-up landing due to a faulty indicator circuit apparently showing the undercarriage as locked down.

On August 15, 1936, only seven weeks after the prototype's first flight, the Air Ministry placed a first production order for 180 machines to Spec.B.30/36 with Handley Page; and at the same time a further production order for 100 'Dagger-Hampdens' – subsequently to be named the HP.53 Hereford – with Short and Harland's Belfast works.

Hereford L7271 emerged in 1937 and was demonstrated in flight over Hendon in June. Finished in glittering natural aluminium, it displayed several differences to its Hampden prototype predecessor K4240. Improvements in outline had been applied to the bomb aimer's nose section and the dorsal gunner's cupola, giving a slightly more rounded appearance to both, while the under-gunner's compartment had also been rounded out to a smoother profile. Despite the 'improvements' the Hereford was



plagued by engine problems and soon reallocated to training duties.

By this time full production of the HP.52 Hampden was well under way and in May 1938 the first from the production line, L4032, made its initial test flights in the experienced hands of Cordes. By this time Dr Lachmann had relinquished his appointment as Handley Page's chief designer to return to his chief interest, design research. George Volkert succeeded him – the third time the latter had held the appointment of head of Handley Page design. L4032 displayed many pleasing improvements in outline to its predecessors. The frontal Perspex compartment was

now curved into an aesthetically pleasing outline, and the upper gunner was housed in a contoured, spring-loaded transparent dome cupola. Fitted with Bristol Pegasus XVIII, 980hp engines, with two-stage superchargers, in NACA-type cowlings, L4032 was the centrepiece in a small ceremony at Radlett on June 24, 1938, when it was officially 'christened' Hampden by the Viscountess Hampden before a distinguished gathering of over 100 guests, including the Secretary of State for Air, Sir Kingsley Wood. After the baptismal ceremony, Maj Cordes gave a brief but excellent demonstration of the bomber's capabilities.

Above
This view looking towards the Hampden's instrument panel shows the pilot's folding seat

Right
Bombs are
loaded aboard
a Hampden in
May 1940

In the following month, a British Mission in Canada arranged for the manufacture of British-designed bombers in that country, and the Hampden was selected as the first such design to be produced. Accordingly, a contract order for an initial batch of 80 machines was dated August 6, 1938, while a second contract for 75 machines was given on the same date to the English Electric Company at Warton, Lancashire. During the next year, two further orders, for a total of 320 Hampdens, were given to Handley Page, and two more contracts, totalling 275 Hampdens were awarded to English Electric.



Early service

The first two production Hampdens, L4032 and L4033, were destined to have a non-operational career. L4032 was allotted to Martlesham Heath on August 19, 1938, for service trials and then went to RAE Farnborough on October 26, 1938, where it became a vehicle for further testing and experimentation. L4033 also went to Martlesham Heath, on September 7, and remained as a test and trials aircraft.

Below
A Hampden
bomb-aimer
demonstrates the
bombsight fitted
in the aircraft's
glazed nose. Note
the Vickers K gun
mounted below the
sighting panel



The first Hampden to be delivered to the RAF was thus L4034 which went to the Central Flying School at Upavon on August 8, 1938, for initial service testing and production of the standard pilot's handling notes. On September 20, it joined 49 Squadron at Scampton, Lincolnshire, the first Hampden to reach a frontline unit. 49 Squadron then quickly exchanged its outmoded Hawker Hind biplanes and was up to full operational establishment of 12 Hampdens by the end of November 1938 – the first Hampden squadron to be so equipped.

The other Scampton-based unit, 83 Squadron, also equipped with Hinds, became the second unit to re-equip, receiving its first example, L4048, on October 31 that year, and reaching a 12-aircraft establishment/strength on January 9, 1939. One other unit to receive Hampdens in 1938 was 50 Squadron at nearby Waddington, which received its first Hampden, L4062, on December 9. By the close of the year a total of 36 Hampdens had been officially taken on RAF charge.

At Waddington 50 Squadron's sister unit, 44 Squadron, commenced re-equipment on January 30, 1939, when it took on charge L4086, and by February 16 was also up to its full 12-aircraft strength. At Hemswell, 144

Squadron received L4120 on March 9 and began exchanging its Bristol Blenheim Is; while 61 Squadron (Blenheims) took L4103 on charge on February 16 as its initial Hampden.

During the remaining six months of peace four more squadrons began re-equipment with Hampdens – 76 Squadron (Wellesleys) began in March; 7 Squadron received its first example, L4155, on April 22; 106 Squadron took its first Hampden, L4174, on charge on May 18; and 185 Squadron started exchanging its Fairey Battles for Hampdens in June. On May 1, 1939, all operational squadron establishments were raised from 12 to 16 aircraft, with five more in reserve.

By the outbreak of war with Germany on September 3, 1939, the RAF had taken on charge an overall total of 226 Hampdens though 14 had been struck off charge. All formed part of 5 Group, Bomber Command in operational units, representing about 25% of the RAF's offensive capacity.

As the European political scene rapidly deteriorated during the high summer of 1939, the RAF prepared hastily for war. On August 26, for example, 83 Squadron at Scampton received orders for a standby at two hours 'readiness' state to leave on detachment to Hooton under the



contemporary Bomber Command 'Scatter' scheme of dispersal in the event of war. On September 1, as German troops poured across the borders of Poland, 83's leader, Wg Cdr Richard Jordan, issued orders for six Hampdens to be bombed up each with four 500lb high explosive (HE) bombs, while the remaining aircraft of the unit were to be detached to RAF Newton. At 2359hrs that night general mobilisation orders were received by all RAF units. At

0530hrs on Sunday, September 3, nine Hampdens of 83 Squadron were on standby at Scampton, fully bombed up, ready to operate against the German fleet – a scene repeated throughout Bomber Command.

First 'Ops'

The first day of war gave three units their first taste of operations. At Scampton, at 1815hrs, nine Hampdens, loaded each with 2,000lb of bombs, took off to

seek out elements of the German fleet in the so-called Schillig Roads. Six of these were from 83 Squadron (L4050, L4054, L4055, L4070, L4071 and L4094) led by Sqn Ldr Leonard Snaith AFC (of Schneider Trophy fame), and three from 49 Squadron, led by Flt Lt George Lerwill. For two of the junior pilots, Fg Off Guy Gibson in L4070 C-Charlie, 83 Squadron, and Fg Off Roderick Learoyd, 49 Squadron, this was the beginning of distinguished operational careers. The aim of the sortie was ambitious to say the least – no pilot in 83 Squadron, for example, had ever taken off in a fully loaded Hampden before. In three 'vics' of three aircraft, the bombers set course for the objective and droned over the North Sea at 1,000ft.

The 49 Squadron Hampdens reached the Horns Reef lightship before turning for home, having seen nothing to bomb; while the other six Hampdens came within a few miles of the target and were then led back, jettisoning their HE loads into the sea. The third unit to go into action was 44 Squadron at Waddington, which dispatched nine Hampdens

Left

Close up of a Hampden gunner aiming his twin Vickers guns from the dorsal position. The lack of power-driven guns proved to be an Achilles heel

Below

Regardless of whether this man is climbing out of, or settling into, the seat of running Hampden L4032, it illustrates the tight squeeze of the narrow fuselage





Above Three Hampdens of 106 Squadron head out for another sortie. The squadron operated as part of 5 Group from late 1939 and converted to Avro Manchesters in February 1942. Nearest is L4182, ZN-K. Behind are ZN-B and ZN-F

on 'armed reconnaissance' i.e. with a full load of bombs, to attack German naval vessels in the Schillig Roads – without success. All were back at base before midnight – for some pilots, their first-ever night landing in a Hampden – and there were no casualties.

A significant feature of the Hampden crews' briefing, which also applied throughout Bomber Command, was the strict order not to bomb any dockyard or other civilian property. This restriction did not apply to military or naval objectives, though purely naval targets were considered as primary in importance. On September 4, 83 Squadron again attempted to attack warships in the Schillig Roads.

Five nights later 106 Squadron made its first operational effort when it sent three Hampdens to sow sea mines in enemy shipping areas – a form of operation later known as 'gardening' and one which was to become the metier of 5 Group's Hampdens. 144 Squadron at Hemswell made its first operational sorties on September 26, despatching 12 Hampdens, fully war-loaded, on armed reconnaissance over the North Sea, seeking German naval targets. None were found and the disappointed crews brought their bombs back.

Three days later, 144 suffered its first casualties. Eleven Hampdens set out from Hemswell in two formations at 1650hrs for an armed recce of the Heligoland Bight area. Six aircraft in the formation led by Sqn Ldr W J H Lindley located two enemy

destroyers and attempted an attack from 300ft. Of these three actually dropped bombs and all six returned safely to base. The other formation, five Hampdens led by Wg Cdr James Cunningham (OC Sqn), was never seen again.

This loss of nearly half a squadron's effective strength in one sortie was the beginning of grave doubts as to the ability of unescorted bombers to accomplish daylight bombing sorties effectively. Further tragic losses among the Whitley and Wellington units on similar daylight raids served to emphasise the futility of such a policy, and all bomber operations were gradually switched to the protection of darkness with operations by night only. The process was only gradual however, and 50 Squadron's first

war sorties – 11 Hampdens flying an armed recce over the North Sea on December 14 – were still in broad daylight.

On December 21, a dozen Hampdens from Scampton searched along the Norwegian coast for the German battleship *Deutschland* without success; while on Christmas Day, 1939, 61 Squadron made its first operational effort by despatching 12 aircraft on yet another daylight armed recce of the North Sea. These individual sorties apart, December saw the beginning of fairly intensive night operations by Hampdens, mainly in sowing sea mines in support of 4 Group's Whitleys on what were then termed security patrols along the German shipping lanes and coastline. The loss rate immediately dropped to zero and the end result, in terms of enemy shipping losses and the semi-blockade of German imports, was far more productive than anything attempted to date.

The contemporary preoccupation with naval targets resulted in 49 and 83 Squadrons being detached to Kinloss and Lossiemouth on January 21, 1940, tasked with anti-shipping sorties across the North Sea. The detachment lasted until April and few targets were sighted or attacked. On the night of February 24/25, 1940, 144 Squadron

Right The HP.53 Hereford was a Napier Dagger-powered derivative of the Hampden. The Dagger was plagued with mechanical problems that would soon relegate the type to training duties





made its first venture over the German mainland, dropping leaflets on Hamburg. Inevitably though, the Hampden's defensive frailties led to its withdrawal from the most dangerous frontline Bomber Command tasks from 1942. That April, 144 and 455 Squadrons transferred from Bomber to Coastal Command to take on the torpedo bomber role

and, later that year, detachments from both units were sent to Murmansk, Russia, on Arctic convoy protection duties (see page 68). Ultimately, four Hampden squadrons were assigned to Coastal Command, the last of them keeping the type until December 1943.

The final Bomber Command raid by Hampdens was upon

Wilhelmshaven, carried out by 408 Squadron RCAF on the night of September 14/15, 1942.

The 714 Hampdens lost on operations represents almost half of the entire production run while the more than 1,700 killed while flying them represents another bitter chapter in Bomber Command's wartime story. ●

Above
A scene we can only dream of today; nine Hampdens (including the camera ship) in flight



Left
A Hampden pilot and two crew stand atop the aircraft around the cockpit and discuss the mission they have just flown over Sylt and Borkum in April 1940



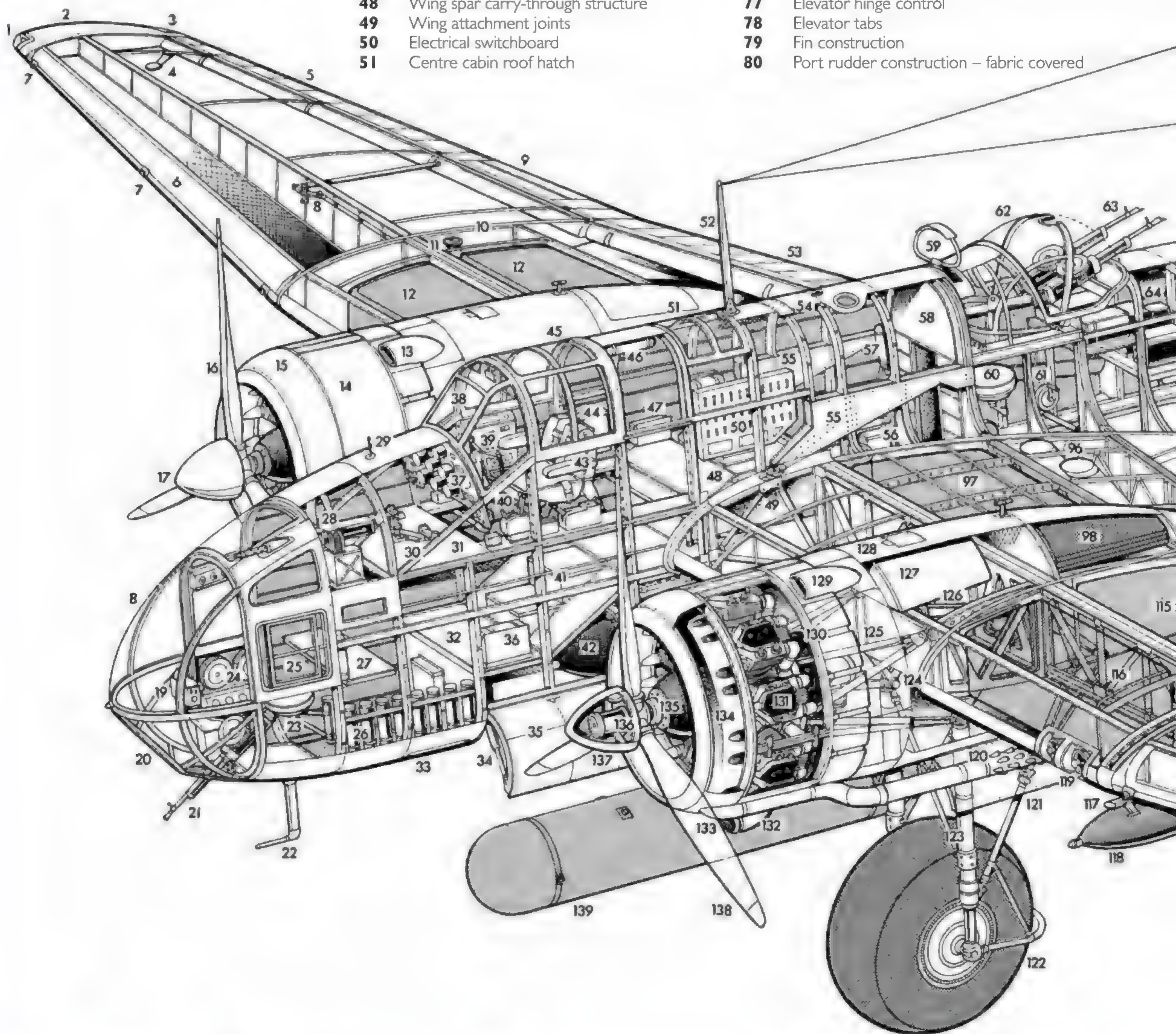
QR

FlyPast

Armourers prepare a 61 Squadron Handley Page Hampden I for its warload of 250lb general-purpose bombs and a single 1,000lb medium capacity bomb at RAF North Luffenham in Rutland prior to an operation on October 12, 1941. KEM Collection



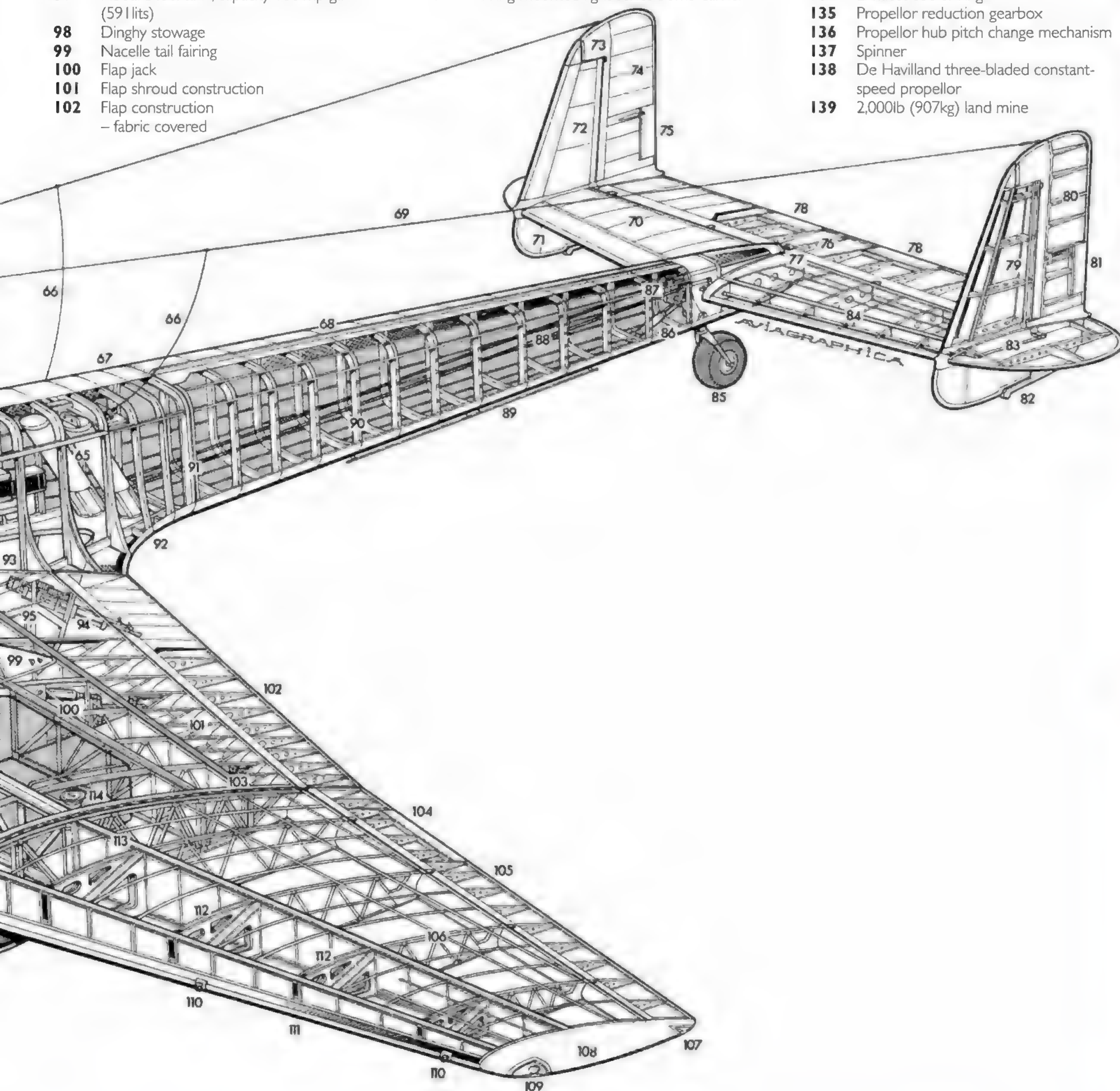
- | | | | | | |
|----|---|----|---|----|--|
| 1 | Starboard navigation light (Green) | 24 | Spare ammunition drums | 52 | Aerial mast |
| 2 | Wingtip fairing | 25 | Jettisonable side window | 53 | Starboard flap |
| 3 | Formation keeping light | 26 | Flame floats | 54 | Upper identification light (White) |
| 4 | Aileron mass balance | 27 | Folding chart table | 55 | Wing attachment joint plates |
| 5 | Starboard aileron – fabric covered | 28 | Fixed Browning 0.303in (7.7mm) machine gun | 56 | Battery |
| 6 | Starboard leading-edge slot (normally bolted closed in service) | 29 | Pilot's fixed gunsight | 57 | Fire extinguisher |
| 7 | Cable cutter | 30 | Rudder pedals | 58 | Rear cabin bulkhead |
| 8 | Aileron control linkage | 31 | Pilot's floor level | 59 | Retractable Direction Finding loop aerial |
| 9 | Aileron tab | 32 | Nose compartment floor level | 60 | Rear gunner's seat |
| 10 | Outer wing panel joint rib | 33 | Ventral escape hatch | 61 | Trailing aerial winch |
| 11 | Fuel filler cap | 34 | Bomb door hydraulic jack | 62 | Upper gun hatch, open |
| 12 | Starboard wing outboard fuel tanks | 35 | Bomb doors | 63 | Twin Vickers K-type 0.303in (7.7mm) machine guns |
| 13 | Oil cooler intake | 36 | Parachute stowage | 64 | Radio racks |
| 14 | Detachable engine cowlings | 37 | Instrument panel | 65 | Flare chutes |
| 15 | Starboard engine nacelle | 38 | Windscreen panels | 66 | Aerial lead-in cables |
| 16 | De Havilland three-bladed constant-speed propeller | 39 | Control column handwheel | 67 | Fuselage skin plating |
| 17 | Spinner | 40 | Engine throttle and propeller controls | 68 | Tail boom skin joint flange |
| 18 | Nose compartment glazing | 41 | Access to lower deck level | 69 | Aerial cables |
| 19 | Drift sight | 42 | Bomb stowage: maximum internal capacity 4,000lb (1,815kg) | 70 | Starboard tailplane |
| 20 | Bomb aiming window | 43 | Pilot's seat | 71 | Ventral fin |
| 21 | Vickers K-type 0.303in (7.7mm) machine gun | 44 | Map case | 72 | Starboard fin |
| 22 | Pitot tube | 45 | Sliding cockpit canopy cover | 73 | Rudder horn balance |
| 23 | Front gunner/bomb aimer's seat | 46 | Fire extinguisher | 74 | Starboard rudder – fabric covered |
| | | 47 | First aid kit | 75 | Rudder tab |
| | | 48 | Wing spar carry-through structure | 76 | Elevator construction – fabric covered |
| | | 49 | Wing attachment joints | 77 | Elevator hinge control |
| | | 50 | Electrical switchboard | 78 | Elevator tabs |
| | | 51 | Centre cabin roof hatch | 79 | Fin construction |
| | | | | 80 | Port rudder construction – fabric covered |



- 81 Rudder tab
- 82 Rudder mass balance
- 83 Rudder control linkage
- 84 Tailplane construction
- 85 Tailwheel
- 86 Retraction jack
- 87 Tailplane control linkages
- 88 Control cable runs
- 89 Beam approach aerial
- 90 Tailboom frame and stringer construction
- 91 Tailboom joint frame
- 92 Blended fuselage/trailing edge fillet
- 93 Ventral fun cupola
- 94 Twin Vickers K-Type 0.303in (7.7mm) machine guns
- 95 Crew entry hatch
- 96 Flare launch tubes
- 97 Inboard fuel tank, capacity 130Imp gal (591lits)
- 98 Dinghy stowage
- 99 Nacelle tail fairing
- 100 Flap jack
- 101 Flap shroud construction
- 102 Flap construction – fabric covered

- 103 Outer wing panel joint rib
- 104 Aileron
- 105 Port aileron construction – fabric covered
- 106 Wing lattice ribs
- 107 Formation light (Dark Blue)
- 108 Wing tip fairing
- 109 Port navigation light (Red)
- 110 Cable cutters
- 111 Port leading-edge slot (normally bolted closed in service)
- 112 Slot guide ribs
- 113 Outer wing panel main spar
- 114 Fuel filler cap
- 115 Outboard rear fuel tank, capacity 110Imp gal (500lits)
- 116 Outboard front fuel tank, capacity 87Imp gal (395lits)
- 117 Wing-mounted light series bomb carrier

- 118 100lb (45kg) bomb
- 119 Landing and taxiing lights (White)
- 120 Flame suppression exhaust pipe
- 121 Mainwheel doors
- 122 Port mainwheel
- 123 Shock absorber undercarriage leg struts
- 124 Main undercarriage pivot mountings
- 125 Engine bearer struts
- 126 Undercarriage retraction jacks
- 127 Oil tank, capacity 18Imp gal (82lits)
- 128 Oil filler cap
- 129 Oil cooler intake
- 130 Engine cooling gills
- 131 Bristol Pegasus XVIII 9-cylinder radial engine
- 132 Carburettor intake duct
- 133 Intake filler screen
- 134 Exhaust cooler ring
- 135 Propellor reduction gearbox
- 136 Propellor hub pitch change mechanism
- 137 Spinner
- 138 De Havilland three-bladed constant-speed propellor
- 139 2,000lb (907kg) land mine





HANDLEY PAGE

HIGH PERFORMANCE
MEDIUM BOMBER

IN PRODUCTION FOR THE ROYAL AIR FORCE



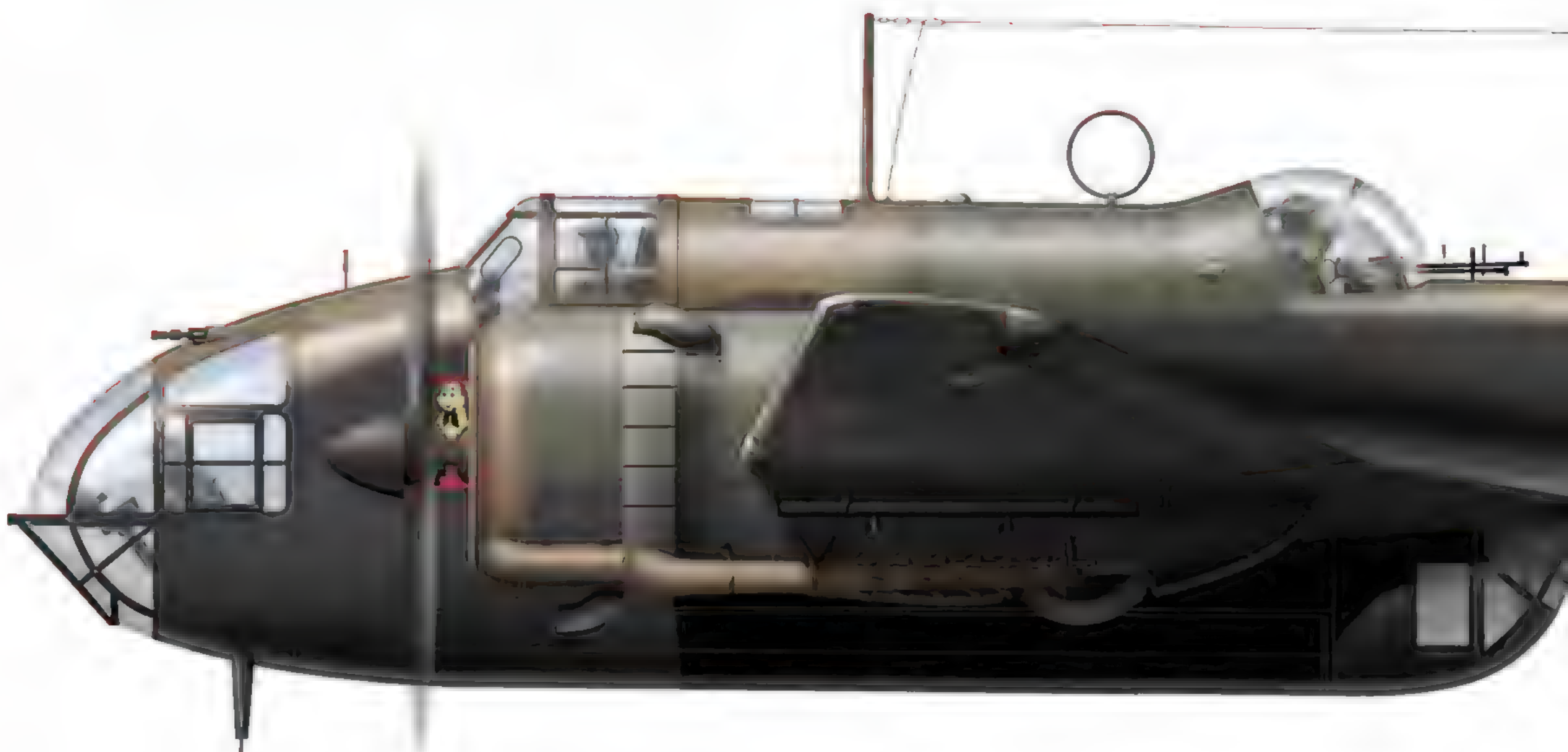
Handley Page HP.52 Hampden TB I AN120/XA-L, Royal New Zealand Air Force No. 489 Squadron, 1944. Several No. 489 Squadron Hampdens were finished in this experimental scheme, comprising Medium Sea Grey topsides over Sky undersides, Type C national markings on the fuselage and fins, Type B roundels above the wings, white squadron codes and a black serial. Bizarrely, AN120 is the most portrayed example – despite evidence it actually served with the Royal Canadian Air Force.

All profiles: Andy Hay-Flyingart





Handley Page HP.52 K4240/8, Hatfield Aerodrome, Hertfordshire, June 29, 1936. Flown for the first time from Handley Page's Radlett aerodrome by the firm's chief test pilot Maj James Cordes on June 21, 1936, the HP.52 was unveiled to the public during the RAF's pageant at London's Hendon aerodrome six days later. On the 29th, it was seen in the 'New Type's Park' at the SBAC show at Hatfield. Wearing a "glossy grey-green" paint scheme, the nose panelling in the initial birdcage-type nose remained 'wallpapered' with aluminium sheeting added to stop the public from peering into the then 'secret' bomber.



Handley Page HP.52 Hampden I AD972/EQ-A, Royal Canadian Air Force No. 408 Squadron, RAF Syerston, November 7, 1941. Attacked by a Messerschmitt Bf 110 night-fighter crossing the Dutch coast, pilot Sgt Victor Dadson threw AD972 into a violent corkscrew to port. Although contact with the enemy aircraft was quickly lost, it was soon realised the crew's observer, 21-year-old Sgt Bernard Palastranga, was missing. On checking, his parachute was also missing and the escape hatch open. While AD972 returned home relatively unscathed, Palastranga's body washed up on the Dutch coast the following month.



Ex-FV810, Sweden ordered a single example in May 1935 for evaluation as a bomber, but it wasn't delivered until September 1938 – respected Nordic test pilot Olof Enderlein flying direct to Sweden's Malmen Airbase from Heston near London. There, it was assigned the designation P 5 – P standing for Provflyplan, or 'trial aircraft', and the serial 810. Ultimately acquired by SAAB as a test platform as SE-APD on July 12, 1945, it remained with them until November 17, 1947 when it was scrapped. By then it was the last airworthy example and the only Hampden to be added to a civilian register.



Handley Page HP.52 Hampden I P4403/EA-M 'Pinocchio', Royal Air Force, 49 Squadron, RAF Scampton, August 12, 1940. One of 11 Hampdens attacking the Dortmund canal aqueduct over the Ems river near the Germany city of Münster, P4403 was battered by anti-aircraft fire as Flt Lt Roderick Learoyd flew into the target at just 150ft in the full glare of the searchlights. Surviving the onslaught, he managed to nurse the crippled Hampden home, where he circled until first light to prevent injury to his crew or further damage to the aircraft with a night landing. For his actions, he was awarded the Victoria Cross.



Handley Page HP.52 Hampden TB I 'White 37', Soviet Naval Aviation, 24th Mine-Torpedo Aviation Regiment, November 1942. In October 1942, 23 Hampden TB Is were transferred to the 24th Mine-Torpedo Aviation Regiment (MTAP) at Vayenga, Murmansk – including 'White 37', assigned to its 3rd Squadron. Nicknamed the 'Balalaika' after a Russian musical instrument of similar shape, the type began operations against German shipping the following month. However, huge losses and a lack of spares/replacements forced its retirement by mid-1943, the 24th MTAP reverting to Soviet-built Ilyushin DB-3 and Il-4s.

Hampden to **Sweden**



Sweden was the only export customer for the Hampden. One modified aircraft, designated by Handley Page as an HP.52 Suecia (Sweden), was delivered direct from Heston in the London borough of Hounslow to Malmslätt Airbase near Linköping in September 1938. In Swedish service it was given the type designation P-5 and carried the serial number 810 while flying with the F II Reconnaissance Wing at Nyköping during World War Two. Post-war, it was sold to Saab, where it took up the civil registration SE-APD and was used for testing instrument and radar systems. Although a contract was signed for a second Hampden, it was not delivered KEY Collection



From Russia With Love

Recovered from a crash site in Russia, the RAF Museum's dedicated restoration of a Handley Page Hampden has reached a stunning conclusion. **Steve Beebee** reports

Patience and perseverance are undoubtedly virtues. Both are implicit in the work of the master technicians and knowledgeable volunteers at the RAF Museum Midlands' Michael Beetham Conservation Centre (MBCC). A shining example of their dedication – the astonishing restoration of Vickers Wellington MF628 (see pages 14-15) – can now be seen by visitors within the Shropshire attraction's War in the Air Hangar.

Another example, one that has required equal patience given

that other matters have inevitably taken precedence at various points, is Handley Page Hampden Mk.TBI P1344. At the time of our visit on September 13, this distinctive veteran sat serenely at the heart of the MBCC's busy workshop. Fully painted in its original 144 Squadron livery, it was enough to make *FlyPast* stop and stare.

One of only three in existence, the Cosford example is surely the most original, even though the project has inevitably required certain parts from other aircraft, and much fabrication. The aircraft's entire body, including

the tail section, is now ready for transport to its final destination, RAF Museum London in Hendon. MBCC also has the aircraft's wings, but the sheer span, almost 70ft, has made it impractical to add those to the restoration. Doing so in future is currently unlikely, but certainly not impossible.

Wartime history

You've only got to spend a short time in the company of MBCC manager Darren Friday to know that projects both present and future are in exceptionally good hands. Darren's worked here for 19 years (the centre opened

Below
Handley Page
Hampden
Mk.I P1344
at Cosford's
Michael Beetham
Conservation
Centre on
September 13
All KEY Jamie Ewan
unless noted





in 2002), and while that long experience will undoubtedly have sharpened his skills and knowledge, it's gratifying to see that he is still genuinely affected by the stories attached to these aircraft. The knowledge of what previous generations endured is something that motivates not only Darren, but all who perform such dedicated work at the centre.

"Every little thing we do here, every rivet we put in, is done with total respect for the crews that flew these aeroplanes," he says. "It still hits me, every time. When working, we never allow ourselves to forget that this aircraft or this type of aircraft would have been used in war. We never lose that sense of respect."

Hampden P1344 was shot down by Messerschmitt Bf 109s in September 1942 over Russia's Kola Peninsula. Two of the five servicemen aboard survived and were taken prisoner, but the other three lost their lives. While the experts at Cosford have done a magnificent job on the restoration,

it is fitting – and poignant – that several bullet holes linger on the starboard side. A remembrance poppy has been positioned in one of them.

With a typical crew of four, the Hampden could operate for seven or eight hours. On P1344's final flight there was a fifth person aboard, technician George Shepherd – his main role would be to refuel or re-arm the aircraft at the end of its outbound trip. "A normal operation would see a crew of four man the Hampden – they'd complete the job, come back to the airfield, and the 'techie' would do his thing there," Darren adds. "This was such a long flight that they had to take one with them, as they'd be refuelling somewhere else."

Ambushed by fighters, Sgt James Robertson, the wireless operator and gunner, and Sgt Daniel Garrity, also a gunner, were killed in the aircraft. Pilot Esmond Perry declared that he was losing control and would crash land the Hampden, but in

the crash Canadian navigator Flt Sgt Gordon Miller also died. Darren: "Perry survived with shrapnel injuries, so he was wrapped in the flight suits of the dead crewmen to keep him warm. This was September and they were a long way north, so it was very cold."

Shepherd went on the run and managed to evade capture for about 36 hours. On being caught, he was taken to the Luftwaffe base at Petsamo, which is also where Perry was brought. The three that died were buried in the cemetery at Petsamo – Stalin had the area bulldozed after the war, removing any hope of returning the bodies to their families.

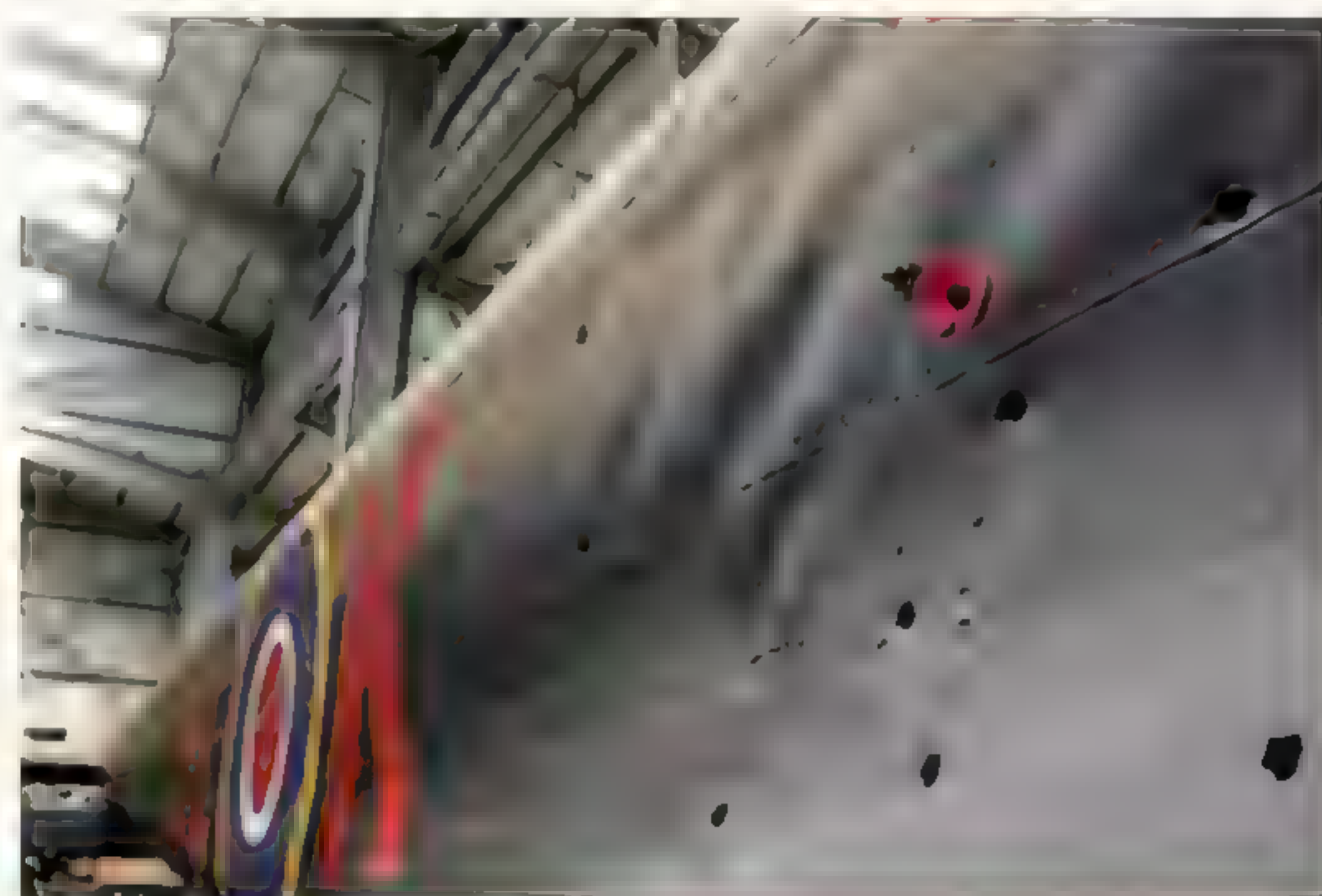
The two survivors were then taken to camps in German-held territory, with the pilot imprisoned at Camp 3, famous for 'the great escape'. George was sent to Camp 8 in Poland. "Not too many aircraft technicians ended up in prison camps," notes Darren, "because they were largely based at Allied airfields and didn't fly very often. In the latter days of the war, when Hitler had the idea of putting a human shield around Berlin, both men were compelled to take part in the long marches, or death marches as they have become known. So, having already got through around three years of captivity, they then had to survive that."

George described it as 500 miles and 52 days in temperatures down to -20. "He said he needed to have a kind of tunnel vision, driven towards preservation, just to get through it," shudders Darren. "Some of them just

Left
The aircraft's original tail boom is likely to be displayed underneath the restored aircraft

Left
Darren Priday is manager at RAF Museum Midlands' Michael Beetham Conservation Centre

Below
A poppy of remembrance has been placed inside one of the bullet holes visible in P1344's fuselage





Above
The forward section of the project has been largely fabricated in a project led by the museum's senior airframe technician

Right
Sgt James Robertson, wireless operator and gunner, was killed when the Hampden was attacked by Messerschmitt Bf 109s
Peter R Arnold
Collection via RAFM

Right
The restoration wears the original markings of P1344 during its time with 144 Squadron

dropped; they didn't have the strength to go on, and you usually couldn't help them. When you stopped at night, you tried to scramble any food you could get from locals. It's an almost unimaginable scenario, so harrowing."

Labour of love

The wreck of P1344 was removed from its crash site in 1991, and the RAF Museum acquired it the following year. The initial plan was to rebuild one half to in-service appearance, with the other half depicting something closer to 'as found' appearance. Around 2010, a decision was made to fully restore the fuselage as closely as possible to the original. There were a few caveats, such as leaving some of the bullet holes visible as a mark of respect.

"It is essentially comprised of four sections, the forward fuselage, rear fuselage, tail boom and the tail section," Darren explains. "Our rear fuselage section is the original piece of the aeroplane while the forward section is a replica. We do have the original forward part and I'd love to be in a position to display that alongside the finished product, on its own stand."

"We looked at incorporating the tail boom into the build but when we started working on it we realised that we'd have to lose so much original material



that we had a rethink. We made a replica tail boom but, in this case, the original one can still be seen underneath it, so when she goes on display that will be there too. We have managed to use about 25% of the actual tail section itself."

The team could potentially have rebuilt the Hampden's wings too, but given the vastly increased workspace this would have

required, focus was placed on the fuselage. "It's something that could potentially be done in the future, given the resources, but the fuselage is nice and thin and will fit very well into its allocated display space in London."

This has also enabled the team to establish a central 'walk through' section for the public, enabling visitors to look inside the body of the aircraft. "You can see the cockpit or you can turn around and look into the rear fuselage," nods Darren. "It gives you an idea, without physically climbing in or touching anything, of what it would've been like to fly in a Hampden."

Returning P1344 to its current, rejuvenated appearance has involved elements of all key skills used at MBCC – restoration, replication and conservation. "The majority of it has been restoration but we soon found evidence of a small fire on the rear fuselage – you could see the fire marks and damage to the paintwork. Just inside that, we found a wiring loom with scorch marks on it. So, rather than trying to restore those parts, we opted to conserve them."

The team was tasked with restoring a Hampden, and while those involved were keen to show respect for the fate of its crew, and therefore to tell its story, they did not wish to display a Hampden with lots of components missing. This, inevitably, came with challenges. "Nearly all the wiring was missing for a start – it came



down in wartime and desperate locals will have salvaged what they could, or what was of use," Darren reflects. "They perhaps used the wiring as snares for trapping animals. There's also a big piece the size of a desk cut out of the wing, and that's where the fuel tank would have been. When it was finally removed from the crash site, the aircraft was basically a shell. We've preserved what we can, but most things have had to be replicated, or partly replicated."

Piecing it together

Led by the museum's senior airframe technician, it's fair to say



Left
An image from Peter Arnold's archive showing the Hampden's regular crew. Technician George Shepherd, one of two to survive the September crash, is not pictured in this view
Peter R Arnold
Collection via RAFM



Left
The restored original port undercarriage leg

that several 'generations' of staff and volunteers have contributed to the project. The former, who now works at the RAF Museum's Stafford establishment, its treasure trove of 'spares', masterminded the rebuild on the forward and rear fuselage, plus the tail boom. "I've worked quite a bit on the rear fuselage with some of our apprentices," adds Darren. "The reason it has taken as long as it has is that other bits of work keep arising, and that means it had to be put on the backburner for various lengths of time. Things kept getting put back, but in around 2014 or 2015 our airframe tech noted that we had a relatively quiet period ahead and he asked me if I'd like him to build the Hampden's forward fuselage. I said 'yes, please'. A few years later I saw this amazing thing emerge. We knew we had the skill level – and our man is not only brilliant, but he was quick; he really put everything into it, and the results speak for themselves."

While the forward section and tail boom are reproductions, the tailplane is approximately 25% original, while the rear fuselage is almost entirely original. Darren shows me some detailed drawings that were put to good use during the work. "We used original components where possible, and Handley Page plans were utilised to help create the rest," he explains. "We made the

Right
A view inside
the Hampden
cockpit. The
gauges have been
sourced from the
RAF Museum's
Stafford collection



control stick but all the gauges in the cockpit come from our Stafford collection.

"There are certain elements that are not there, and a lot of that is the Perspex. It's incredibly costly, and because the Hampden is virtually unique, it would be a one-off. The expense comes from the need to manufacture the mould – that's most of the work, and 90% of the cost. If you want a Spitfire canopy the moulds are out there, so it's probably quite cheap, relatively speaking.

"I am happy with the aircraft as it is – we would love to have

some Perspex fitted and maybe in time the museum will have the resources to do so, but for now the Hampden will go on display as it is. We haven't left it in a position where it cannot be fitted, so it'd be nice to think that in the future it might happen."

The team at MBBC has also been in touch with East Kirkby's Lincolnshire Aviation Heritage Centre, which has its own Hampden project. "Ours is 'PL-K', and theirs is 'PL-J'," notes Darren. "The two aircraft are very closely linked and were both lost on the same night."

Hampden P1344 was built at the Handley Page factory in London. There were two other sites undertaking assembly of Hampdens or Hampden components, English Electric at Preston and Short and Harland in Belfast, which mainly worked on the aircraft's 'sister', the Hereford. Close examination of P1344 initially caused some consternation, as it had P2133 written on the wing. Research revealed that the Cosford

machine suffered a crash-landing at Upper Heyford, Oxfordshire, in its early days, possibly when it went for its conversion into a torpedo bomber. That change of wing wasn't the end of the story, as Darren reveals:

"At some point, due to that heavy landing, the wing was swapped, but when this aircraft was located in Russia not long after the Berlin Wall came down, the number it appeared to have was L6012 on the tail boom.

"L6012 was actually a Hereford. Our aircraft is not a Hereford because it's got radial engines – what had happened was that an Anson once taxied into its tail boom, and it needed a replacement. It's a real hybrid aeroplane in that respect, and these are the sort of mysteries we don't necessarily expect when embarking on a restoration project."

With mysteries solved and work complete, the only remaining task is to safely transport the finished product

Below
The original tail
boom could not
be incorporated
into the
restoration, but
has been retained
for display



to its final destination, Hendon. A display space for the Hampden has already been identified. "It's due to go down there soon; we don't have an exact date for it yet. Part of me would love it to stay here at Cosford, but moving it to London is a great decision that will open it up to a whole new audience. Plus, with it going on display, it's likely that even more information about it, and Hampden 'ops' in general, will come to light."

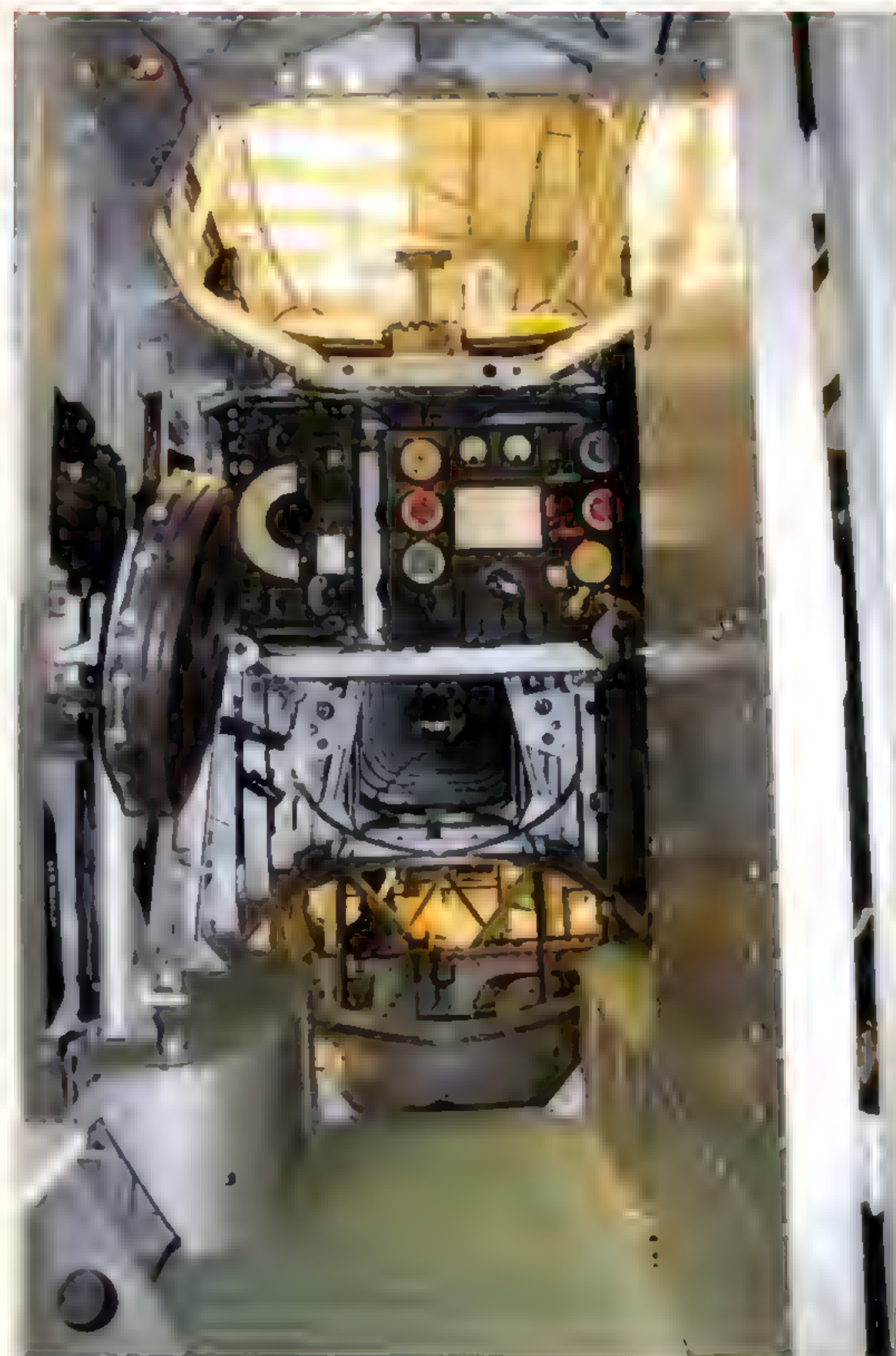
Closing the circle

Over the years Darren has been fortunate enough to have met several men that served on Hampdens and other aircraft during the war, including a 100-year-old veteran with a frankly astonishing 61 'ops', all on Hampdens, in his logbook.

You don't need to know anything about aircraft restoration, or aircraft in general for that matter, to see how inspired Darren and his

team have been by these links. He tells stories of meeting elderly gentlemen who had rarely spoken about the war, and listening to them as they suddenly opened up to relive their often-hidden memories in startling clarity. There have also been other visitors to the centre with family links to the aircraft, or aircraft type.

"As much as I love doing the work, meeting the veterans is without doubt very special," Darren says. "I met Flt Lt Brian Beattie, who flew P2133, at one of our special Open Weeks. He sat very patiently waiting to talk to me, and told me he'd actually taken a photo that I had been showing, and he told me all the names of the crew, who were New Zealanders. There's also Fred Hill, who departed quite recently aged 102, who completed 32 'ops' in Hampdens and 55 on Mossies. When you meet these guys, it really brings it all home to you.



Above
A view from the front cockpit looking back towards the rear



Left
The project's distinctive forward section is only lacking Perspex

"I've been lucky enough to hear these stories either firsthand or from airmen's families and at times, it hits me hard. The hardest one I've ever had was during Covid with [presenter and historian] Dan Snow. With us was John Watt, whose father was a 144 Squadron wing commander and was lost coming home from an 'op' in a Hampden, because they got entangled in the cables of a barrage balloon. We believe they even redesigned the leading edge of Hampden wings as a result of that.

"John, who was 80 at the time of his visit, never got to meet his father. The last phone conversation his mother had with his father was to tell him that she was pregnant. Tragically, John's father then took off on his next mission and never returned. So, we were able to open the hangar doors and show John a Hampden for the first time in his life. You can imagine the emotions - three of us just stood there weeping. Your heart can only take so much..."

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FlyPast's **Jamie Ewan** recently caught up with Katrina Hodges – the driving force behind the bid to return Victor K.2 XL191's nose section to its former glory...

A NEW

Below
Katrina Hodges
with XL191
shortly after it
arrived in Iron
Mountain on June
28, 2023
All images Katrina
Hodges-XL191
unless stated



he Victor has such a dominating presence compared to other V-Bombers," comments Katrina Hodges as she looks over her shoulder while chatting on Zoom. Behind her, the imposing lines of Victor K.2 XL191's nose are emerging from the shadows in the early morning light cascading into the hangar. I nod. Even now, more than 70 years after the type's first flight, the last of the V-Bombers still looks futuristic.

Unlike the few remaining examples of British aviation giant Handley Page's distinctive creation, this nose section resides in the United States. While that shape remains menacing, this example has clearly seen better days – countless cuts are visible

in the skin of the stripped hulk. Katrina explains: "One of my biggest weaknesses in life is looking at the ingenuity and togetherness it took to build such a machine – I couldn't let that rot away to nothing. It needed saving."

But how is it that XL191 survives in a country thousands of miles from the skies it once ruled alongside Vickers' elegant Valiant and Avro's delta-winged Vulcan? It's a long and interesting tale.

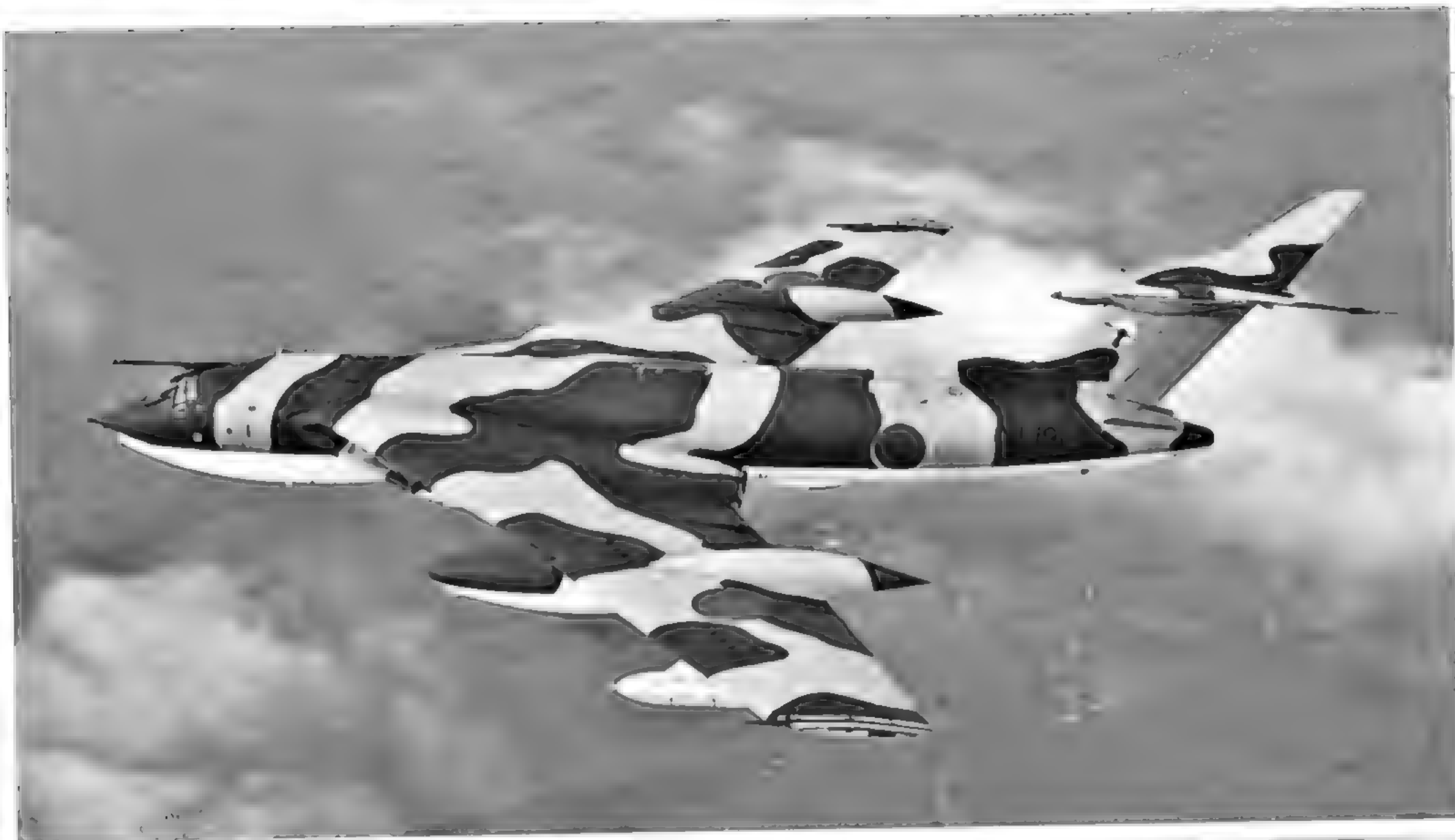
The road to Ohio

The story began in 1955 when Handley Page felt it could improve on its Victor B.1 model, the type then bound for the RAF as part of its airborne nuclear deterrent. Beginning work on the definitive B.2 that could "fly higher, fly faster", the aircraft included more

powerful Rolls-Royce RCo.11 Conway 103 turbojets in place of the original Armstrong Siddeley Sapphire ASSa.7s, bigger engine intakes, a stretched wing, a revised electrical system including new countermeasures, a pair of retractable 'elephant ear' intakes on the upper rear fuselage for the Ram Air Turbine system, and the addition of an auxiliary power unit (APU). It took to the air for the first time on February 20, 1959, but government hesitancy and uncertainties surrounding the UK's nuclear response, and the merging of aircraft manufacturers resulted in just 32 B.2s being built – including XL191, construction of which started at Handley Page's Radlett factory in Hertfordshire on September 20, 1961. Rolled out almost a



CHAPTER...



Left
A fine study of XL191 airborne from RAF Marham while serving as a K.2 with 55 Squadron sometime during the late 1970s
KEY Collection

year later in the type's distinctive Anti-Flash White scheme, the jet was taken on strength by the RAF on June 13, 1962, and delivered to 139 Squadron at RAF Wittering, which lies on the border of Cambridgeshire and Northamptonshire.

Its service life included spells on QRA (Quick Reaction Alert) armed with Blue Steel stand-off missiles, numerous deployments worldwide, and a stint as a low-level bomber wearing grey-green camouflage. It was converted to a K.2 three-point tanker by Hawker Siddeley Aviation in 1970. XL191 flew on despite defence reviews, cuts and government mismanagement. It flew and supported trial flights, including those of XX946, the first of four Multi Role Combat Aircraft prototypes (the future Tornado) in July 1975, before undergoing major overhauls at RAF St Athan in South Wales in 1982 and 1984, the latter resulting in the standard hump with a light grey underside

scheme worn by the type in its latter days.

XL191 served across the Victor fleet with numerous units – including 100 Squadron, 231 Operational Conversion Unit and 55 Squadron. It was while with the latter in 1982 that the aircraft was tasked to Operation Corporate – the British effort to recapture the Falkland Islands. It was still with the unit when

written off on June 19, 1986, after landing short of the runway at Canada's John C Munro Hamilton International Airport in bad weather – thankfully with no harm to the five crew on board.

Like its service history, the events that led to XL191 lying wrecked in Ontario could fill these pages. They include inadequate planning, electrical problems, poor leadership, ➤



Left
The damage to XL191's radome is evident in this post-spares recovery view of the jet – note the missing escape hatch
Via Katrina Hodges-XL191

Right

The challenge ahead is revealed in this view of what remains of XL191's cockpit in 2023

**Below**

Handley Page Victor XL191's nose section arriving at the Canadian Warplane Heritage collection's hangar at John C Munro Hamilton International Airport in 1986 – it would be there less than a year
Via Katrina Hodges-XL191

crew resource management, attempting a visual approach through cloud, leaving the UK with the wrong frequencies for an instrument approach, and even low-level sightseeing. Oh, and a barrel of beer! With XL191 flying direct to Ontario from Marham for an appearance at the Hamilton Airshow, the organisers had requested that the crew bring a barrel of British beer to sell at the show. When emergency services reached the aeroplane moments after it had crashed, they were amazed to see the RAF crew pushing the barrel out of the wrecked jet. With the firemen recovering both the

shaken airmen and the barrel back to their station soon after, the beer 'mysteriously' never made it to the show!

The Soplat connection

The Victor had hit the ground some 300 feet short of the runway. Bouncing back into the air, it hit the ground again and skidded off the runway, before ground looping and coming to a rest on its belly about 500m from the initial impact point. While it looked relatively intact, investigations revealed that the underside was badly crushed and that the main undercarriage legs had punched up through the wings. As a result,

XL191's damage was declared as Category 5(S) on July 7, 1986 – in other words it was deemed beyond economical repair, and suitable only for scrap. The bulk of it was therefore scrapped at Hamilton, but the RAF donated the forward section to the resident Canadian Warplane Heritage collection.

However, it didn't fit in with the attraction's mandate and was offered for sale soon after.

With the remains acquired by renowned collector Walter Soplat, they were moved to his property near the US township of Newbury in Ohio. Here they remained for some 30 years until they emerged in 2020 – by which time, a company called MotoArt had reclaimed much of the remaining skin for a run of 1,000 limited edition 'PlaneTags'. This is where Katrina enters XL191's story.

But why the Victor? "I'd always been fixated by the Victor since I saw one in a magazine when I was little," she says. "I was maybe nine or ten years old – but it has such a bizarre and strange look. I'd heard there was a Victor somewhere in Ohio, but nothing really more than that. That is until I ran into Dave Hall of PlaneTags at Sun 'n Fun in 2022 – he was selling tags with the image of a Victor on it.

"They were weathered and all different shades of greys, tans and yellows. But each said Victor K.2 on them. I queried him about where they came from and what was left. They were from XL191 in the Soplat Collection."



Reaching out to a mutual friend, Gino Lucci, Katrina managed to contact Margaret, Walter's daughter, and her husband Bill.

Katrina smiles: "After about a year of emails, I finally got to go to Ohio and see XL191 myself. When I saw 'her' it was love at first sight. It was then I knew I had to do something – my poor husband Vincent didn't have a choice but to let me bring the stray Victor home. I mean how can you not see a sad soul sitting there waiting to be appreciated?"

It was 2023 when Katrina acquired the battered and weathered remains of XL191. "From when I first saw '191 to buying it, the process took about two years – there was a lot of back and forth and relationship building. I've made some great friends along the way and view the Soplatas as almost like grandparents now. We actually celebrated my 30th birthday by XL191 and ate cake right next to her!"

That same day, June 26, the nose section began a two-day, 400-mile road trip north to Ford Airport in Iron Mountain, Michigan – from where Katrina is chatting to me via the power of the internet. She comments:



"Transporting the cockpit was a huge task – especially finding a way to lift it without causing further damage to the structure. Although the ejection seats are long gone, the rails are still there – and structurally sound. So, we used them as an attachment point for the lifting straps."

Positive mental attitude

Katrina 'shows me around' XL191, albeit 'virtually', and it's clear the exhibit is in far better condition than when *FlyPast* initially reported on it, around a year ago. Almost as soon as it arrived, Katrina got to work cleaning up around three decades worth of

dirt and grime. In the weeks following, the aircraft was moved under cover.

"It was the first time XL191 had seen the inside of a hangar for almost 40 years," Katrina recalls. "It also meant the real work could begin. Ultimately, I'd love to turn her into a functioning cockpit procedures trainer that can be enjoyed by everyone – especially people here in the States as it is something they would [otherwise] have to travel to the UK to see. But there is a lot of work to do before that."

"Each time I look at it, I find myself asking 'why?' when looking at some of the damage. ➡



Left
XL191 at the Soplatas' property in Ohio shortly after being acquired by Katrina Hodges in 2023

Left
On the road – XL191 heads north out of Ohio on June 26, after a near half-century in the state that gave the world the Wright brothers



Above
Katrina climbs aboard Victor K.2 XL213 'Lusty Lindy' during a research and part finding trip to the UK earlier this year

Right
Not much of XL191's original skin survives – as is seen in this study of the nose section at Ford Airport shortly after its arrival

Then there's the holes; I've counted more than 100 of them. I am looking at the viability of 3D Printing a Thermoplastic polyurethane patch for some of the small cuts and then to use filler on any gaps with a friend of mine, Michael Rich, who's helping me produce the CAD [Computer-Aided Design] files. The first test patch took only 12 minutes to print, but it showed I need to get more precise measurements.

"I admit, I don't have much sheet metal and riveting expertise," she adds with a frown, "just a bit of knowledge I've picked up here and there. I'll be using some unorthodox and experimental methods as I learn new skills and acquire new tooling to get XL191 looking decent again. So, I expect some negative feedback toward my methods. At the very least I'd like to preserve the original riveting as best as possible."

My comment is simply to opine that anything that saves a classic

aeroplane, especially something as characterful as a Victor, has to be better than the scrapman's axe. There are only four complete Victor airframes extant, along with ten nose sections, one of which is a former K.2 simulator/procedures trainer. The number of surviving airframes was cut when K.2 XH673 was scrapped at RAF Marham in Norfolk in late 2020 having sat on the base's gate since retirement in 1993. There were numerous attempts to save it, but sadly none were successful.

If it wasn't for Katrina stepping in and saving XL191 when its future looked bleak, that number would have been fewer still. "I've had some mixed reactions to the acquisition," she reflects. "Most have been positive thankfully – although there have been some negative comments too. The attitude I get from the naysayers is that, if it won't fly, it's junk. Or that it's a waste of money, too far gone, etc. I feel there are a lot of people waiting for me to give up, but it's my supporters who inspire me to keep going. Granted, I'm very stubborn so nothing will bring me down!"

Helping hands

As XL191's cockpit is largely bare within, there remains the potential to return it to its original B.2 configuration. It's something Katrina has her eye on: "I'd love to do it, but getting the parts isn't

easy. I'd love to return as much of her original kit as possible."

After crashing at Hamilton, most of the spares recovered from XL191 were sent back to support the Victor fleet back home – 55 Squadron's K.2s at Marham. With the type heading for retirement, many spares were scrapped, while some were sold into private hands – including to Andre Tempest who owns, and stills runs, K.2 XL231 *Lusty Lindy* at Elvington near York, and David Walton for XM715 *Teasin' Tina* at Bruntingthorpe, Leicestershire. Much has vanished over the years, but incredibly some have made it back to XL191.

"A few months back, Brian Pierson, who is building a full scale Convair B-36H Peacemaker in West Virginia (you should check out his YouTube channel, 'Building The Last B-36 Peacemaker') put me in contact with Greg Spahr who happened to have XL191's original periscope," says Katrina. "We spoke and he very generously donated it to the project. I also managed to get one of her original panels from the UK. To think they haven't been in '191 for more than 30 years yet survive today. It's such a cool note in her history."

There has also been support from those connected to the few Victor survivors. "Andre Tempest and his partner Eloise with





Left
Easy does it: XL191 is moved undercover for the first time in some 40 years – a huge milestone in the project

XL231 have been a huge help,” smiles Katrina. “They invited me to stay with them and let me get up close with *Lusty Lindy* – she’s a real working Victor. They have also been a tremendous help with manuals and information.

“Gary O’Keefe of the Victor Association has also been a massive help – he donated a much-needed nose cone, as well as other bits. He is also letting me use some of his incredible collection for reference and to 3D scan some of the harder to get parts so we can fabricate them here in the US.

“Ian Dale of the Vulcan Flight Simulator has been a great resource. In fact, if I get really wild with it, they have inspired me to turn ‘191 into a functioning sim. There have been so many people who’ve helped me that I can’t



Left
Katrina is considering the use of 3D printed patches to fill the more than 100 holes in XL191’s skin

name them all, but it feels like there’s an army standing behind me, supporting me and being there for me. I certainly don’t feel alone.”

As part of her efforts, Katrina has managed to secure a much-

needed radome, XL191’s having been virtually destroyed in the crash, as well as a pair of escape hatches. The only problem is that they’re thousands of miles away in the UK. “Buying parts is one thing, but shipping them is a logistical nightmare – that’s the hardest challenge,” she rues. “The biggest issue I have right now is trying to get them shipped across. I was quoted between \$8,000-\$10,000. I’m trying to rely on my income and extra work detailing aeroplanes to fund the project. Unless I can get help from the likes of the RAF, RCAF or USAF, or even a sympathetic shopper, I may have to cut the radome into four pieces to ship it in a more economical manner.

“If anyone has any advice or can help figure out how to ship them across, or has the blue prints to build a display stand, I’d love to hear from them. As far as actually working on ‘191, it’s like a big puzzle – I love it. I’m sure 🍷





the silver lining – which is that XL191 survives. I'm grateful that life has worked its magic and put her into my care. I hope to make the community proud as XL191 continues to represent the type."

Like Katrina, this writer has always been fascinated by the crescent-winged giant that Handley Page rolled out more than 70 years ago. While maybe not as glamorous as the Vulcan in its heyday or afterlife, or as elegant as the Valiant, the Victor has a unique presence that simply demands attention. I'm excited to follow this new chapter in XL191's story.

To keep up to date with Katrina's efforts on XL191 you can follow the project via its Facebook page – just search for 'Handley Page Victor XL191 Zealous Zoey'. Katrina has also set up a Go Fund Me page for anyone who'd like to donate to the project – you can find it here: www.gofundme.com/f/xl191-restoration-fund 🐇

Above
Keen to return as many of XL191's original parts to the aircraft as possible, Katrina secured this cover panel via an auction in the UK

I will come to find some really frustrating aspects to this, but getting the parts to us is by far the biggest challenge."

'Zealous Zoe'

Katrina holds a patch up close to the camera. On it are written the words 'XL191 Zealous Zoe' with a boxing rabbit motif. When the Victor went to war for the second time during 1991's Operation Granby, the UK's contribution to the First Gulf War, those taking part all gained nose-art – names like *Lucky Lou*, *Saucy Sal*, and *Maid Marion* becoming synonymous with the type's final years in RAF service. By that point, however, XL191 was already resident at Walter Soplata's aviation sanctuary in Ohio.

Katrina comments: "I really wanted to give XL191 a name. Surviving what she had, I really thought she deserved a name of her own. I sat for a while thinking about it, trying to follow the naming formula of other Victors like *Lusty Lindy* and *Teasin Tina*. I wanted to make sure whatever I chose fit that formula, but also to pick something that had some meaning to '191.

"In 2020 I rescued a rabbit and named her Zoey – she's a tough, scrappy rabbit that's been through a lot for a small creature. Like Zoey, XL191 is a rescue. For the nose-art, I chose a 'boxing rabbit' as she did once break my nose. As for the zealous part – well, you've got to be a zealous person to take on this kind of project. And so *Zealous Zoey* was born!"

While there is obviously a huge amount of cleaning, ripping out, sanding, grinding, cutting and

painting ahead, I ask Katrina about her long-term plans for XL191. "Once complete, she will reside in a small museum I am trying to get kicked off here at the airport in Iron Mountain. This is a big deal for the town as XL191 is the sole Victor outside the UK.

"I'd love for the crew who flew XL191 to visit some day and assure them that despite what happened, she probably wouldn't exist had that incident not happened. Sometimes bad things happen, but what's important is to pick up the pieces and look at

Right
When Zoey met Zoey! Katrina's Lionhead rabbit with her namesake...



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Photo credit: Rene Vink

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THE SONIC

SIXTIES

Above
In 1960, 74 Squadron formed the English Electric Lightning-equipped display team The Tigers. Here, XR771 provides a platform for a Tigers group shot. Trevor Macdonald (Bennett)



I expect recent articles commemorating the 70th anniversary of the English Electric Lightning's maiden

flight will have evoked memories, particularly among those lucky enough to have seen the RAF Lightning display teams perform back in the early 1960s, when the type first entered service. Unfortunately, I was not one of them as their appearances seem to have been restricted to the annual SBAC Farnborough shows, the Battle of Britain shows at their

home stations or the occasional high profile foreign appearance related to the pursuit of export sales.

The Lightnings never appeared at our local Battle of Britain show at RAF Finningley, but my late father would certainly have seen them on his annual pilgrimage to Farnborough when I was too young to accompany him. Today, it seems inconceivable that the RAF would field a nine-ship display team of its latest frontline fighter, but as the first supersonic type produced by the British

aircraft industry the Lightning was cause for national pride. It was a product of what future Prime Minister Harold Wilson would refer to as "the white heat of technological revolution", along with other British inventions such as the Harrier jump jet and the hovercraft.

Its introduction to RAF service in 1960 was seen as something to be celebrated, so in the first year of the Lightning service with 74 Squadron at RAF Coltishall, Norfolk, the squadron was ordered to form an aerobatic



Left
The Sea Vixens of 892 NAS entered the display season as Simon's Circus in 1968. This image was taken on August 22 of that year

KEY Collection

display team. The squadron's CO was Sqn Ldr (later AVM) John Howe, a Korean War veteran, whose biography *Onward & Upward* (Pen & Sword, 2008) relates that "1960 was a difficult year because the MoD decided to make 74 a 'show case' squadron to demonstrate the RAF's new Mach 2 fighter. John still remembers that when he got the signal telling him that he was to put four aircraft over Farnborough every day... he didn't have four aircraft!"

For solo displays prior to Farnborough, the pilot was briefed to "keep it low and make plenty of noise" in order to achieve maximum impact, while the daily briefings for Farnborough went something like this: taxi at 100 yard intervals and line up on the runway in echelon; use 80%

rpm holding on the brakes and roll at three second intervals for maximum reheat take-off; aim to use the same pull-up point for an 80° climb; cancel reheat and use 82% rpm to give 300kts at 6,000ft; then join up in box; start display with flypast in Swan formation with wheels and flaps down, then clean up aircraft in front of crowd and move into rest of display; change into line astern; rejoin in box for the run in and two-way break; fly synchronised circuits leading to the ten second stream landing.

Tigers

In 1961, the team was expanded to a nine-ship display and, the following year, because of the unit's famous tiger head emblem it became The Tigers, taking on the mantle of being the RAF's primary aerobatic team for its second season. Howe gives the following description of their display: "The display sequence that evolved started with the nine-ship formation coming over low in an arrowhead, approaching and flying past the crowd, then doing a 360°, changing to a diamond and flying past the crowd in that formation. Then came a wing over and, while doing that, [team member] Ken Goodwin would come in for the first of his solos. And so, the sequence continued with Ken filling in the gaps

The 1960s was an era dedicated to speed and power. **Mick Britton** looks back on a golden age of fast jet display teams



Left
The Firebirds of 56 Squadron became the RAF's primary display team in 1963

Crown Copyright



Above
Although the Scimitar was large and heavy it was capable of fine demonstrations of aerobatics, as this quartet of 807 NAS examples prove during a formation aerobatic routine in 1959
KEY Collection

while the remainder of the team was out of view or changing formation.”

The Tigers were among the stars at that year’s Paris Air Show, their display being witnessed by a crew member from 99 Squadron, then flying Bristol Britannias, who was particularly impressed by the display’s finale: “One manoeuvre at the end had the spectators on their feet applauding. As the main formation wheeled away, a singleton came screaming from behind and over their heads at near sonic speed with afterburners at full blast and at very low level. The sudden shock of noise hit like a thunderclap and startled

everyone, but when it was realised that it was part of the display, they were on their feet cheering and clapping, something I’d never experienced before.”

Firebirds

In 1963, The Tigers were succeeded by The Firebirds of 56 Squadron, equipped with the Lightning F.1A, followed two years later by a team from 111 Squadron with the Lightning F.3. By now, the Lightning was well established, the novelty had worn off and the realisation had perhaps dawned that using frontline squadrons equipped with thirsty, high-performance jets as aerobatic display teams to entertain the public was probably an expensive misuse of defence assets. Also, the Lightning squadrons were now required to perform their *raison d’être*: defending British interests overseas by policing its withdrawal from Empire.

The Tigers were deployed to Singapore in 1967, to deter Indonesian aggression, and the Firebirds went to Cyprus, to safeguard against potential threats to this strategically important staging post. When danger did materialise, it was unexpectedly from Turkey, a NATO ally, which invaded the north of Cyprus in 1974 to protect the local Turkish populace from the growth of Greek nationalism, which sought to achieve unification with the mother country.

Having more pressing duties to perform, the aerobatic team mantle passed from Fighter to Training Command and front-line fighters were replaced by advanced jet trainers. The Folland Gnat-equipped Yellowjacks were formed from aircraft and pilots of 4 FTS, who performed their first display in 1964. They evolved into today’s Red Arrows, which initially swapped five yellow Gnats for nine red ones, staying with the type until 1979 before converting to the Hawk for the 1980 display season.

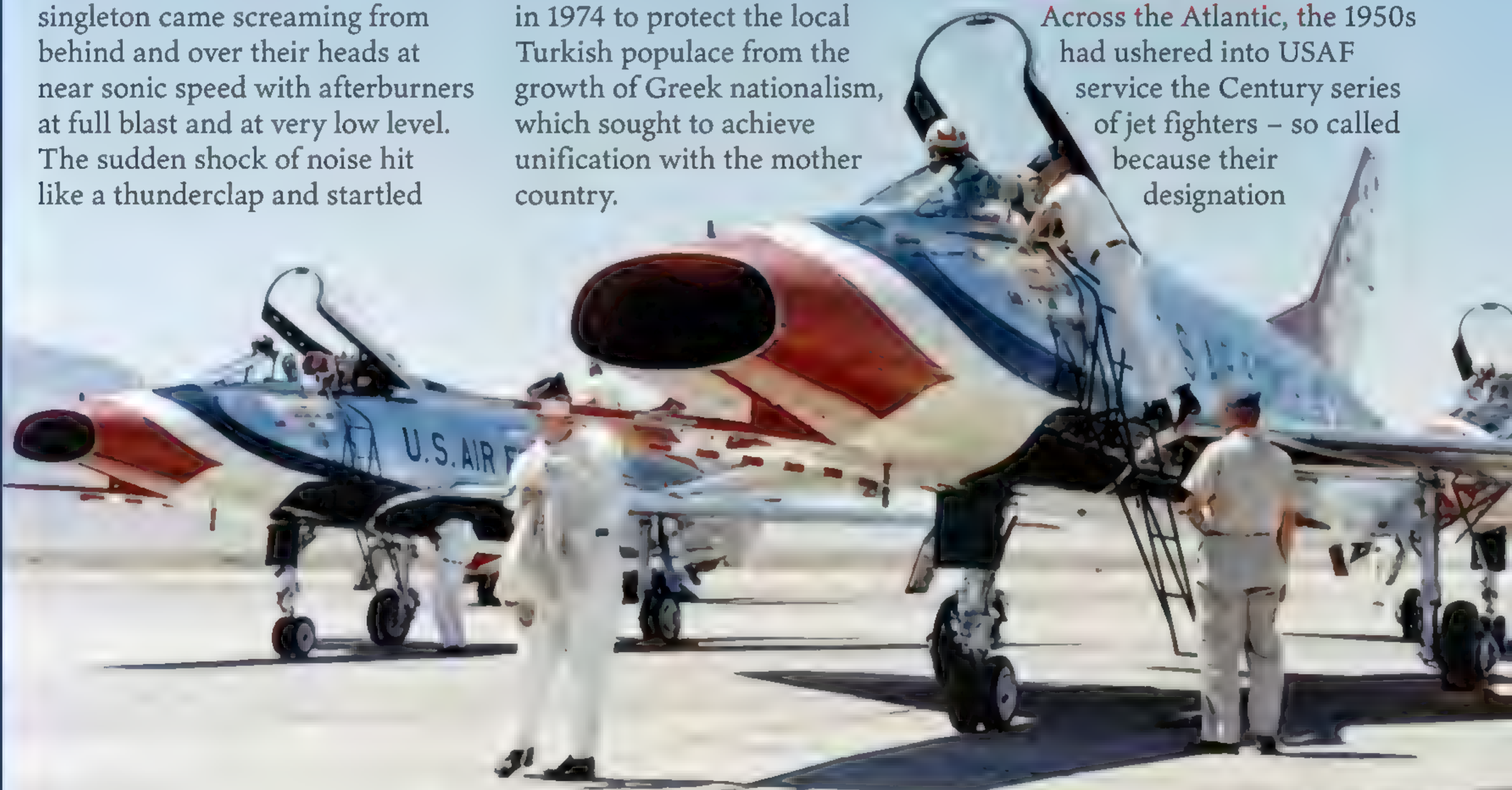
Navy machines

During this period, the Royal Navy (RN) also occasionally fielded fast jet display teams, such as the Scimitars of 736 Naval Air Squadron (NAS) in 1961 and the Sea Vixens of Fred’s Five in 1962. After a six-year absence, the Navy returned to the airshow circuit in some style in 1968 with two fast jet teams: the six Sea Vixens of Simon’s Circus from 892 NAS and the Buccaneers of the Phoenix Five of 809 NAS. The swansong of RN fast jet aerobatic teams was performed by a quintet of Phantom F-4Ks of the Yeovilton-based 700(P) NAS in 1970.

Stars and stripes

Across the Atlantic, the 1950s had ushered into USAF service the Century series of jet fighters – so called because their designation

Right
In the 1960s the designated USAF aerial demonstration team The Thunderbirds had spells flying the North American F-100C and F-100D Super Sabre either side of a brief transition to the Republic F-105 Thunderchief
USAF





numbers began at 100. The designated USAF aerial demonstration team The Thunderbirds had graduated to a five-ship in 1956 upon receiving the North American F-100C Super Sabre. It was regarded as a 'hot ship', having been developed from the YF-100A, which had exceeded Mach One on its maiden flight. The Thunderbirds briefly transitioned to the Republic F-105 Thunderchief, before reverting to the F-100D, while the USAF's European display team, The Skyblazers of 36 Fighter Wing, based at Bitburg in West Germany, also flew the F-100C from 1956 to 1961.

Meanwhile, the US Navy's Blue Angels demonstration team – one of the world's oldest, dating from 1946 – flew the Grumman F-11 Tiger throughout the 1960s,

before transitioning to the McDonnell F-4J Phantom in 1969. A supersonic fighter with a maximum speed of 890mph, a variant of the Tiger set a new world altitude record in 1958, reaching 76,989ft. However, it is probably most infamous for having shot itself down when, while on a test flight in September 1956, one of the first examples overtook and was hit by its own cannon fire just seconds after discharge, much to the embarrassment of its test pilot.

Continental Europe

Apart from Britain, the only European nations whose aircraft industries could develop high-performance jets were France and Sweden. The latter was home to the Saab company, noted for its unusual aircraft designs and for having produced the first swept wing fighter of western European origin to enter post-war service

in the rotund shape of the J-29 Tunnan. Its next product was the more graceful, double-delta configured J-35 Draken, which entered Royal Swedish Air Force service in 1960. With a maximum speed of 1,320mph, the type would equip 17 squadrons, so it is not surprising that two teams were formed to display the type.

The Acro Deltas of F18 Wing led the way in 1964, followed by a team from F16 Wing the following year. One of the main export customers for the Draken was the Royal Danish Air Force, whose Esk 725 fighter squadron operated a four-ship display team in 1971. France's national aerobatic team, the Patrouille de France, was the earliest to relinquish a frontline combat jet for a jet trainer when it switched from the Dassault Mystere IV to the Fouga Magister in 1963. By no means a particularly high-performance jet fighter, the Mystere had a maximum speed of just 696mph, but a one-off variant, the Mystere IVB, became the first French built aircraft to exceed the speed of sound after being fitted with an afterburning Rolls Royce RA7R turbojet.

One of the smaller, but no less impressive, fast jet display teams of the 1960s was the Belgian Air Force Lockheed F-104G Starfighter pair called The Slivers, which was the only one I was privileged to witness when they performed at our local SSAFA show at RAF Church

Left

The Blue Angels replaced its F-4J Phantoms (pictured) with A-4F Skyhawks in 1974

Photographer's
Mate First Class C
Michelson/US Navy

Below

The Phoenix Five was formed from Buccaneers from the Royal Navy's 809 NAS. Here Buccaneer S2 XT275 is seen at Culdrose on July 26, 1972

Chris England





Above
The Acro Deltas of the Swedish Air Force operated four Saab Drakens from 1963 to 1966.

76 author

Fenton in 1970. Formed in 1969 at Beauvechain by 350 Squadron's Major Steve Nuyts, they were the first team in the world to perform a synchronised aerobatic routine with this Century series jet, which had acquired a somewhat frightening reputation in the hands of some operators who had christened it 'The Widow Maker' as a result of the high attrition rate experienced. The Belgian duo's title derived from the nickname of the 'Silver Sliver', given to it by Lockheed test pilot Glenn 'Snake' Reaves due to its shiny natural metal finish and thin profile.

Many pilots doubted that it was possible to display the jet in this way, but Nuyts was convinced otherwise and persuaded W/O Palme De Vlieger to join him in the adventure. The result was an exciting high tempo display which exploited the jet's speed

and noise to the maximum. It comprised a series of opposition passes, finishing with a high-speed crossover at crowd centre, the alignment for which required using the edge of the runway as the display axis, with one aircraft flying above the runway and the other over its grass margin, resulting in a separation distance of just two metres. Thrilling stuff indeed.

After witnessing it, my father and I watched their smoke trails as they disappeared towards home, oblivious to the next display item. It was simply one of the most memorable displays I ever saw and the Belgian team only made a handful of appearances in the UK before their disbandment in 1975.

Down Under

The Mystere was succeeded in service with the Armee de l'Air by

the Dassault Mirage III, which was France's first genuinely high-performance aircraft jet. With a maximum speed of 863mph, it achieved significant success in terms of foreign sales. Australia purchased Mirage IIIs to re-equip its fighter squadrons, one of which, 76 Squadron, formed a four-ship display team at Butterworth, Malaya, in 1969, while the following year 77 Squadron at Williamstown, New South Wales, fielded a bigger seven-ship team called The Deltas.

This golden era of fast jet display teams ended in the 1970s. In the wake of the 1973 Yom Kippur War, the dramatic hike in oil prices introduced by the newly expanded Organisation of Petroleum Exporting Countries (OPEC) forced nations to adopt a more economical attitude to the use of their expensive combat aircraft. This even had repercussions in the US, resulting in the re-equipping of The Thunderbirds with the more economical Northrop T-38 Talon jet trainer, while the US Navy's Blue Angels traded down to the Douglas A-4 Skyhawk, although in a rare exception they returned to 'heavy metal' in the form of the F-18s they fly today.

Looking back through today's rose-tinted spectacles, it seems incredible that such widespread use of 'heavy metal' even happened, even if I only have the single firsthand memory to treasure. ●

Right
Belgian F-104G display duo The Silvers deploy their chutes upon landing at RAF Alconbury on June 11, 1975.

Mike Hall





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FOUR-IN-ONE



Ken Ellis tracks down the many clues to Hamble's incredible aeronautical heritage

Above
The second
prototype Fairey
Seafox, K4305,
under test at
Felixstowe in
1937 KEC



Turn any corner in the parish of Hamble-le-Rice in Hampshire and you're likely to come across an aviation-related road name. For example, there's Aquila Way, Avro Court, Baron Road, Chadwick Way, College Way, Ensign Way, Firefly Road, Spearfish Way, Spitfire Way, Tutor Close, and Verdon Avenue. Read on – their relevance will unfold.

Here two aerodromes, a marine aviation base and an aircraft factory formed a unique quartet. It might have been a quintet: the Admiralty started to construct a seaplane base between what

became known as the South Airfield and Hamble Common, but it was unfinished by the time of the Armistice. While flying has long since stopped, the Hamble Aerostructures plant builds sub-assemblies for programmes including the Airbus A350.

The scope of Hamble's aeronautical heritage is breathtaking, but to keep this feature within realistic bounds, only a *taste* of the incredible activity can follow.

Atmospheric boatyard

Land at the confluence of Southampton Water and the River Hamble is perfect for waterborne

aviation – this is Hamble Point. In 1913 the Hamble River Luke and Company built its HL.1 floatplane there but the business folded in July 1914.

The following year Richard Fairey was looking for somewhere to test the seaplanes being produced by his newly established firm at landlocked Hayes in Middlesex – the Point had potential. With the help of the Admiralty, a row of sheds was erected on the shoreline. A fire in 1932 destroyed these buildings, but they were replaced and during World War Two a Bellman and another large hangar joined them: all of these survive.

Fairey occasionally used the Point for production as well as air tests. For example, an improved version of the Sopwith Baby patrol floatplane was manufactured as the Hamble Baby from 1917 to 1918, and all 66 Seafox catapult-launched seaplanes were made there between 1936 and 1938.

In 1946 the company diversified by establishing Fairey Marine, which became famous for beautifully crafted vessels. At the same time, the Point's role in

Right
A line of
aircraft sheds
now in use by
boat builders
and suppliers
Ken Ellis





aviation began to dwindle. Special projects continued until the late 1950s, including five Fireflies converted to TT.1 target-tugs for the Indian Navy during 1954 and 1955.

As a bustling boatyard, the Point is full of atmosphere. Here are Firefly Road and Spearfish Way. As explained, the site has a connection with the Firefly fleet fighter, but not so the lumbering Spearfish torpedo/dive-bomber prototypes of 1945-1947. This is not a case of fanciful naming; the Firefly and the Spearfish were also successful Fairey Marine motorboats.

Southern venture

As well as an expanding factory at Newton Heath, Manchester, pioneer Alliott Verdon Roe had his sights on a south coast facility and like Richard Fairey, he chose Hamble. Grandiose plans to create a Victorian-inspired 'garden village' with bespoke accommodation for workers as well as extensive hangarage were prevented by wartime privations, but the aerodrome and slipway were ready by early 1916.

In 1926 this site was referred to as the South Airfield, as *another* all-grass area – the North Airfield – was created on the other side of Hamble Lane.

While as many as 150 Avro 504Js were assembled at Hamble, essentially it was home to the design office and where the

prototypes were erected and flown, with series production remaining in Manchester. These culminated in the Avenger fighter and Buffalo torpedo bomber of 1926 before the design staff relocated northwards in 1928.

On the last day of April 1919, test pilot Harold Hamersley took the prototype Baby sporting biplane for its maiden flight. At about 300ft he accidentally knocked off the ignition switches and the little 35hp Green stopped; the Baby splattered into the mud of the River Hamble.

Another of Hamersley's tasks was to teach chief designer Roy Chadwick to fly. On January 13, 1920, the second Baby nearly brought Chadwick's dazzling career to an abrupt end. In a website devoted to her father, Margaret Dove (who died in 2008) described what happened: "Roy had gone up without his flying jacket. It was a cold day, and he fainted. He came to as he

was crashing into trees beside the aerodrome. His right arm, left leg and pelvis were severely fractured and the joystick went through his neck!" Thankfully the man destined to create the Lancaster made a full recovery.

Avro's output included autogiros under licence from the Spanish rotorcraft trailblazer Juan de la Cierva during the late 1920s. Cierva himself had a workshop at Hamble from 1926, until he settled on Hanworth in 1931.

Corporate shuffle

In May 1928 Avro was acquired by the Armstrong Siddeley Development Company (ASDC). Aircraft manufacturer Armstrong Whitworth (AW) was in its portfolio. Consolidation continued in June 1935 when ASDC and Hawker combined to form what became the Hawker Siddeley Group (HSG) which was reorganised as Hawker Siddeley Aviation (HSA) in 1959. All these names were to have an association with Hamble.

Roe had long nurtured an ambition to build flying-boats and with the sale of his company to ASDC, he could realise this. In the autumn of 1928, he invested in Sam Saunders' business at Cowes, Isle of Wight, and it was renamed Saunders-Roe – Saro for short. From the late 1920s Roe lived in Hampshire, handy for his new venture.

Knighted in 1929 Roe, Britain's first fully indigenous aviator and co-founder of an aviation dynasty, passed away aged 81 on January 4, 1958. He rests in a simple family grave within the churchyard of St Andrew the

Left

Avro 504K E9265 outside the Avro flight shed at Hamble in 1922, testing an Armstrong Siddeley Lynx installation Avro

Below

Hamble, looking northwest in 1934. Left is the Avro flight shed and South Airfield, running through the middle Hamble Lane and to the right the North Airfield and AST hangar KEC



Right
Part of the
AST fleet, circa
1936. Left:
Atlas Trainer
G-ABHX with
DH.9J G-AARR
or 'T' behind,
with Cadet
G-ABWS
heading the line
up on the right
KEC

Apostle, off Hamble's Church Street.

Two of Roe's three sons, both squadron leaders in Bomber Command, died in combat. Eric, aged 26, was killed when his 102 Squadron Whitley V Z6576 fell to a Luftwaffe night-fighter during a raid on Hanover on July 26, 1941. Lighton, aged 22, was at the helm of Lancaster Mk. III ED857 of 156 Squadron on May 13, 1943, when it came down in the target area, Duisburg. A plaque within St Andrews commemorates the father and his fallen sons.

University of the Air

While Avro was vacating Hamble during the early 1930s, sister company AW was moving in. The latter was rapidly outgrowing its airfield and factory at Whitley Abbey, south of Coventry, and planning began to relocate to nearby Baginton – now Coventry Airport. Hamble would be an excellent home for AW's flying school and it migrated south in April 1931.

Expanded and reconstituted as Air Service Training (AST), it



became known as the 'University of the Air'. Clients were mostly British plus overseas airlines and foreign air arms. The 1930s fleet included 'home grown' Avro Avians, Cadets, Tutors and two-seater AW Atlases and Siskins, as well as Saro Cutty Sark flying-boats. After the war the line-up boasted Airspeed Oxfords and DH Tiger Moths, Douglas Dakotas and Hiller helicopters.

Parent HSA divested itself of AST in 1960 and it was renamed the College of Air Training, with DHC Chipmunks and later Beech Barons and Piper Cherokees. The

college shut in 1984 followed by the North Airfield two years later. Today most of it has reverted to heathland. A display board in Spitfire Way illustrates the area's aviation heritage.

Heavy metal

By 1936 AW at Baginton was at maximum capacity churning out Whitley bombers and turned to its associate AST to assemble 14 Ensigns for Imperial Airways. Replacing venerable Handley Page HP.42 biplanes, the Ensign was then the largest British airliner with a 123ft span and 48,500lb all-up weight.

Running roughly north-south, the North Airfield's 3,000ft main runway was hemmed in by railway lines to the west and north, woodland and the River Hamble to the east, aerodrome infrastructure and housing to the south – not ideal for large aircraft under test. Ensign maiden flights were intended to be one way, finishing at Baginton.

Charles Turner-Hughes (often known as T-H) and co-pilot Eric

Right
Prototype
Ensign G-ADSR,
probably on
show to the AW
workforce at
Baginton, early
1938 Rolls-Royce



Below
An AST tender
escorting Saro
Cutty Sark
G-ACDR off
Hamble, circa
1935 Rolls Royce





Greenwood took Ensign prototype G-ADSR up for the first time on January 24, 1938. Straight away they were in trouble. The rudder was extremely heavy, both pilots straining on their pedals to counter the loading. After 15 minutes the exhausted pair brought the monster back to its birthplace. Not until October 1941 did the final Ensign depart.

This was not the last time that T-H had problems with a Hamble prototype. The first two Albemarle medium bombers (P1360 and P1361) were built there. Before he committed to a take off, T-H wanted to get to know how the type's innovative tricycle undercarriage behaved with trial 'hops'. During such a run on March 20, 1940, T-H realised he'd left things far too late to apply the brakes. Pulling back manically on the control column, he was horrified to find that he could only just claw P1360 into the air for a much-truncated circuit. Performance was improved by extending the wingspan by 10ft before testing was transferred to Baginton.



This manufacturing experience made AST a strong contender for the Civilian Repair Organisation (CRO) contracts from 1940. As well as other types, AST processed a staggering 3,400 Spitfire and Seafire rebuilds, modifications and spares recoveries up to early 1946.

From the late 1940s up to 1951, AST carried out engineering work on three Lancasters, a Lancastrian and a pair of Lincolns to turn them into turboprop or jet engine testbeds. Most exotic was former RAF Lancaster Mk.I RA805 which was fitted with a pod for a turbojet suspended from cradles in the bomb bay. Commissioned by the Royal Swedish Air Force, as 80001, it first flew on April 24, 1951.

Other design authority work included creating the first Javelin T.3 trainer, WT841, for fellow HSG member, Gloster. When complete it was roaded to Moreton Valence and flown on August 26, 1956. By this time much of the South Airfield had been built upon, other than land close to the shoreline which served as a flying-boat base.

Military units

Also moving to Hamble from Whitley Abbey in April 1931 was the AW-operated 3 Elementary and Reserve Flying Training School, which was managed by AST. This was 'called up' into the RAF in September 1939 as 3 EFTS, and was joined by 11 Air Observer and Navigator School in November. Both decamped to Watchfield in the summer of 1940.

The most famous wartime inmate was the Air Transport

Auxiliary (ATA). A detachment of the White Waltham-based 1 Ferry Pilots Pool (FPP) arrived in 1940, becoming independent as 15 FPP in July 1941. Declaring that ATA actually stood for 'Anything To Anywhere', its civilian pilots – male and female – delivered all types, relieving frontline personnel from the task.

From September 1941 pilots at 15 FPP were all female, attracting considerable press coverage. In her superb book *The Forgotten Pilots* (Foulis, 1971), ATA aviatrix Lettice Curtis outlined the main tasks: "The work at Hamble consisted for the most part of short ferry trips... Spitfires from [Supermarine works] Eastleigh, High Post and Chattis Hill [and the repair output from AST] went mostly to maintenance units... The Oxfords [from Airspeed at Portsmouth and Christchurch] which were mostly destined for the north went to White Waltham [ATA headquarters, for onward ferry] as did the Walrus from the Saunders-Roe factory at Cowes...

"Because of the proximity of Hamble to the Royal Naval Air Stations at Worthy Down, Lee-on-Solent and Gosport, we used to be given for the return trip from White Waltham, a variety of the naval aircraft of the era, such as Gladiators to Gosport, [Vought] Chesapeake and Swordfish to Lee and Albacores to Worthy Down."

A memorial, crowned by a Spitfire sculpture, was unveiled on the 70th anniversary of the formation of the ATA in Aquila Way on July 10, 1940.

Post-war there were three long-term RAF units at Hamble:

Above
The prototype Javelin T.3, WT841, during testing at Moreton Valence in 1956 Gloster

Left
Hamble's ATA memorial
Ken Ellis



Above
Lancaster Mk.I
RA805 re-
engineered as a
jet testbed for the
Royal Swedish
Air Force by AST,
1951 FMV

Southampton University Air Squadron and the associated 2 Air Experience Flight, both of which departed in 1978. The Anson-equipped 1 Basic Flying Training School, formed in 1951 only to disband two years later. All of these were operated on contract by AST.

Flying-boat revival

Within the trading estate on the western side of the former South Airfield is Ensign Way. This leads to a slipway that once saw the launch of Britain's last commercial flying-boat services.

On November 3, 1950, BOAC Short Solent G-AHIO *Somerset* cast off from Southampton's waterfront, bound for South Africa on the last of the airline's flying-boat services. While the flag carrier saw no future in flying-boats, former 210 Squadron Sunderland pilot Wg Cdr Barry Aikman had other ideas.

Aikman had formed Aquila Airways in 1948, but his plans were put on hold while he contributed converted Sunderlands to the Berlin Airlift, flying from Finkenwerder on the Elbe to Lake Havel. Meanwhile, he engaged AST at Hamble to maintain his fleet that reached 12 operational flying-boats: eight Sunderlands, a Sandringham and three Solents.

Sunderland G-AGEU *Hampshire* flew the first schedule, to Madeira on March 24, 1949. Regular destinations from Southampton also included Las

Palmas, Lisbon, Majorca and Marseilles. Charters provided additional income, the longest ranging going to the Falklands in 1952.

A run of accidents doomed Aquila and operations ceased on September 30, 1958. Three Solents were prepared by AST staff and ferried to Portugal in November/December and with that Britain's era of flying-boat airliners closed.

Gnat's birthplace

A large hangar and a slipway were completed in July 1936 at the western end of Hamble Lane

for British Marine Aircraft. The company had high hopes of building four-engined Sikorsky S-42 flying-boats, but these were dashed the following year. Henry Folland was appointed as chief engineer and the business was renamed after him. The illustrious designer had created the SE.5A, the Gladiator and other fine aeroplanes.

Despite Folland's skills, only one production contract was achieved, for the ungainly Fo 108 purpose-built engine testbed. Twelve ordered in 1940 were assembled at out-stations at Southampton and Staverton. Henry was a gifted manager and Folland Aircraft expanded, becoming a highly rated sub-contractor, providing sub-assemblies for Bristol, Supermarine and Vickers, among others. This inaugurated the factory's mainstay business through to the present day.

In August 1941 Henry was approached with a challenging commission, to turn the Spitfire V into a floatplane under the Supermarine designation Type 355 Special. As well as the stylish 'sea boots', this involved removing the undercarriage, strengthening the wing and installing a new tail

Right
Aquila
Sunderland 3
G-AGEU beached
on the former
South Airfield
in 1951: it was
scrapped two
years later KEC



Right
Spitfire V EP754
converted to
a floatplane
by Folland at
Hamble in 1942
KEC





section with a larger rudder and a ventral fin. Three machines were converted (W3760, EP751, EP754) and began tests from Hamble during November 1942; the project was shelved in the summer of 1944.

Post-war, Folland continued its niche as a sub-assembly specialist, making wings for DH Doves and DHC Chipmunks, for example. Henry Folland died on September 5, 1954, aged 65. His place was taken by his deputy, 'Teddy' Petter, the creator of the English Electric Canberra.

Petter devised Folland's most

famous product, the proof-of-concept Midge and the Gnat lightweight fighter/advanced trainer. Boscombe Down was the venue for the first flight of the one-off Midge (August 11, 1954) and Gnat F.1 (July 18, 1955) while Folland secured Chilbolton as its test centre.

Close to 400 Gnat F.1s were made, the bulk under a lucrative licence deal with Hindustan Aircraft for the Indian Air Force. The RAF ordered 105 T.1 trainers, production lasting from 1959 to 1965, and the type gained fame as the first mount of the Red Arrows.

Folland was acquired by HSA in October 1959, less for the Gnat, more for its renowned sub-contracting capabilities, and by 1971 it was building structures for Airbus. In March 1977 HSA became part of British Aerospace which sold off the Folland factory in January 1989. The business took the name Hamble Aerostructures which today upholds the area's proud aviation heritage.

Across the road from the Folland plant stood a pub that in the 1970s adopted the name *The Harrier*. It closed in 2014, making way for retirement flats. Bartenders became inured to know-it-alls pointing to the factory and proclaiming: "But they don't build Harriers there!" Perhaps not whole 'jump-jets', but the rear ends of the T.2 and T.4 two-seaters were crafted in Hamble along with other elements of the Harrier programme. Further east down Hamble Lane is the Harrier Veterinary Surgery, which keeps the debate going. ●

If you plan to visit Hamble, Solent Sky in Southampton is also highly recommended. www.solentskymuseum.org With thanks to Richard Hall and Nigel Price.

Left
Gnat F.1s for the Finnish Air Force on the line at Hamble, 1958
Folland

Below
Gnat T.1 XM693 is displayed outside its birthplace at what is now the Hamble Aerostructures plant Nigel Price



HANDLEY PAGE PUZZLE



Handley Page was a British aircraft manufacturer, founded in 1915 by Sir George Handley and Sir George Page. The company was a major producer of military and civil aircraft during the interwar period and the Second World War. It was acquired by the British Aircraft Corporation in 1936 and merged with it in 1938.

In the mid-to-late 1960s, Handley Page used a C-47 Dakota 3, G-ATBE, to fly personnel and parts around the UK in support of its HP Jetstream development programme. The 'Dak' sported a subtly different style of HP logo on its tail to the company's usual 'trademark' image. The Handley Page Association is unaware of the reason for the different style used on 'Bravo Echo'. Do any readers know the story behind the logo variation? Main image: Alan Dowsett. With thanks to Alan Dowsett and Bob Barton.



Right: The aircraft is still at the airport, but the tail has been repainted with the standard HP logo. The aircraft is still at the airport, but the tail has been repainted with the standard HP logo.

Wings over Anatolia

Greek Navy air operations over Asia Minor in the years after World War One are outlined by **Andrew Thomas**

Right
Ens Theologis of the HNAS at Mudros with a DH.9 in 1918
All images: Hellenic Air Historical Branch



Below
Sopwith F.1 Camel of the Greek Naval Air Service H2 Flight at Moudros in 1918. Pups were also used for fighter duties

The mythical exploits of Daedalus and Icarus in ancient Greece notwithstanding, aviation began in Greece on February 8, 1912, when a Nieuport IVG monoplane named *Halcyon* was flown around Athens by its owner, Emmanouil Argyropoulos. During the First Balkan War that began in October that year, Greek forces made their first use of aircraft, and these were employed to some effect, particularly by the Navy.

Following the conclusion of the war, in May 1913 a British Naval Mission was invited to Greece and its head recommended the secondment of an RN officer to assist developing naval aviation. Cdr C P Pizey RN arrived as flying instructor and the training of pilots for the planned unit began. However, after the outbreak of World War One, the aircraft that were on order were commandeered by the Royal Navy. Nonetheless, progress was made under RN tutelage with a Naval Flight being formed in



April 1915. In December 1916 the Hellenic Naval Flying Corps (HNFC) was formed and operated under the aegis of 2 Wing RNAS. This unit blossomed into the Hellenic Naval Air Service (Naftiki Aeroporiki Ypiressia - NAY) under the leadership of Lt Cdr Aristides Moraitines in April 1918 that continued operations until an Armistice with the Turks was signed on October 30.

Asia Minor campaign

When peace returned, the Naval Air Service was under Capt K Panayotou, following the tragic death of Moraitines – units concentrated at Moudros and all its ex-RNAS equipment was formally transferred to Greece. In February 1919, other than a detachment of four Short 184s at Moudros, the service concentrated on the mainland near Athens at Phaleron (seaplanes) and Tatoi (landplanes) where training was conducted. Other trainees were sent to the Royal Air Force flying school in Egypt. In addition to the Shorts, the HNAS inventory included 15 Sopwith Camels and a dozen de Havilland DH.4s and DH.9s.

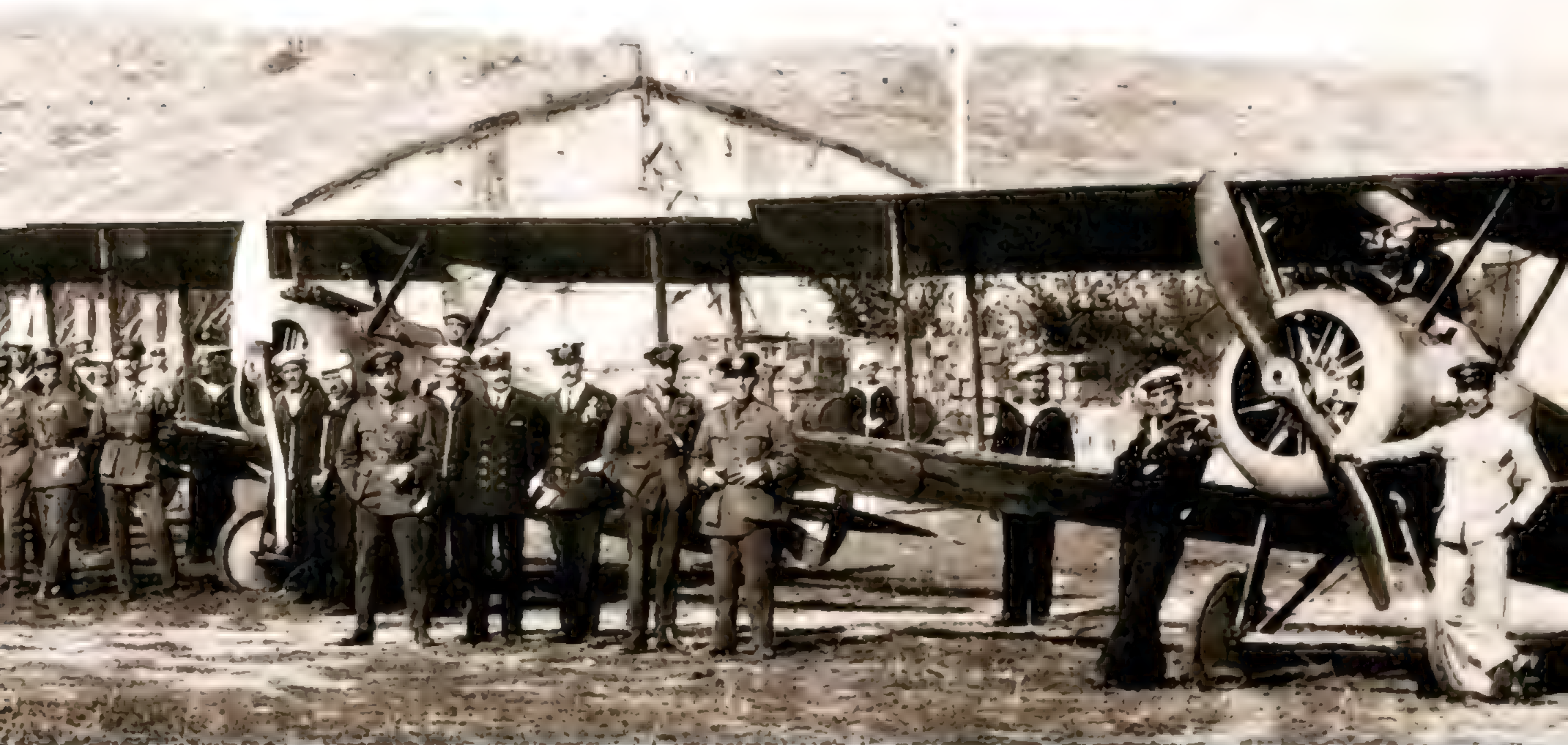
The old Balkan rivalries soon re-emerged and in May 1919, with Allied consent, the Greek Army landed and occupied the

Turkish city of Smyrna (Izmir) as a new Greco-Turkish War began. This port town in Asia Minor (Anatolia) fell to Greek forces on May 2 and on that day the DH.9s of the Greek NAS arrived at the nearby Paradissos airfield, though initially lack of fuel supplies restricted flying. These aircraft now wore the blue/white/blue Greek national roundels along with a wavy line down the fuselage (the initial distinctive insignia of the Naval Air Service) and their serial numbers were prefixed 'NAY'. The Smyrna

Naval Air Squadron (Naftiki Aeroporiki Moira Smýrnis) was formed at Kazamir in August, equipped with ten DH.9s and 15 Camels.

The fighting against Turkish forces continued through into 1920 with the NAS DH.9s being heavily involved as by June the Greeks controlled the entire western coast of Asia Minor. Two Advanced Front Flights were deployed, one at Ousak (after its capture on August 16) and one at Kazamir. They were engaged in a wide diversity

Above
De Havilland DH.9 E8991 of the NAS probably at Tatoi in early 1919 after transfer from RAF charge. It was delivered to Moudros in October 1, 1918
Hellenic Air Historical Branch



Right
The de Havilland
DH.4 was also
flown by the
Hellenic NAS with
this one being
seen at Kazamir
airfield, Smyrna on
October 8, 1919

of tasks, including photographic reconnaissance, bombing and air fighting along a front that by 1921 stretched to 430 miles.

Among the more notable bombing attacks were those against Kioutachia (Küthaya) and Eski Sechir (Eskişehir) in northwest Turkey. However, early operations in the spring of 1921 did not yield the expected results. Before an offensive that opened on June 27, 1921, Army and Navy squadrons were busy. On June 9 six NAS DH.9s bombed Kutahya airfield and railway station with good results. During a later sortie over Eski Sechir, a Turkish fighter forced a DH.9 to land. However, it took off the next day and completed its bombing attack against a railway depot. NAS aircraft were busy supporting the Greek offensive when it opened on June 27, with Kutahya falling on July 4 and Eski Sechir two days later. Later in the month the Naval Squadron flew 11 missions from Afyon Karahisar (Afyonkarahisar), heavily bombing the railway at Tsai. During this fierce offensive the NAS provided continual reconnaissance when requested.

Below
This DH.9
wears distinctive
NAS markings.
Numbered 'NAY73'
and with the Naval
'wavy line' marking,
it's pictured around
May 1920 during
the Greco-Turkish
war at either
Paradissos or
Smyrna

On August 8 an aircraft bombed a large Turkish column that was attempting an encircling movement to cut the supply lines in the Greek rear areas. Its crew then spotted some Greek mountain artillery units engaging

the enemy and co-operated with them to direct their fire against another column, forcing it to disperse. However, the offensive overstretched Greek capacity and an ordered withdrawal was made to the August 1 position that was achieved with full air cover.

Overstretch

Sadly, inter-service rivalries and a lack of understanding by the Army High Command on the use of air power led to some farcical

situations. For example, the NAS Flights did not participate in the critical Battle of Sakaya on the Sangarios River that raged from August 23 to September 13, 1921, because of a quarrel between Lt Cdr Pauboules the NAS commander and the local Army commander. This battle, that the Turkish leader Kemal Atatürk considered as the modern Armageddon, was probably the turning point of the war. Turkish opposition stiffened and increased, particularly in the air, and after several severe reverses, in the summer of 1922 Greek forces began withdrawing. The NAS provided cover to the retreat whenever practical along with units of the Army Air Force.

During one air battle to the northeast of Afyon Karachisar (Afyonkarahisar), some 185 miles east of Smyrna on July 12, 1922, 1/Lt Christopheros Stavropoulos shot down a Turkish Breguet 14. The Greek squadron finally left Asia Minor on August 26 with the last three aircraft abandoning Smyrna under fire from Turkish artillery. The final Greek troops left Ionian soil on September 5 so that after all the sacrifices, everything had been lost. The



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Above
A Turkish DFW
seaplane destroyed
by an HNAS air
attack in 1921

war finally ended in October with the Greeks returning to the pre-war borders, leaving eastern Thrace and western Anatolia with the Turks. A peace treaty was finally signed in July 1923. During the war 23 Greek airmen lost their lives.

Peacetime development

After the conclusion of the war with Turkey, the Naval Air Service was formed into a single squadron that returned to its peacetime bases at Phaleron and Tatoi, equipped with the surviving Camels and de Havillands. After a period of introspection and rationalisation, in 1925 the NAS began a badly needed programme of modernisation to replace the worn-out World War One-vintage aircraft. The modest programme saw the purchase of six Avro 504N and 504O trainers and four Blackburn Velos torpedo bombers, two of which were fitted with dual controls. Later in the year, Blackburn oversaw the production of a dozen further Velos at a factory

constructed at Old Phaleron. The first of these Greek-built aircraft entered service with the NAS in 1926. Reorganisation was in the wind however, because in 1929 the Army and Naval aviation components were amalgamated as an independent air arm, the National War Aviation (EPA), split into an Army and a Navy Group. The latter comprised two reconnaissance flights at Phaleron and a torpedo bombing flight at Tatoi, this flying six Hawker

Horsleys that had been delivered in 1926.

Then, in November 1935, the EPA was re-designated as the Royal Hellenic Air Force so by the time war loomed again in 1939, the worthy traditions of the Hellenic Naval Air Service were continued in the three Naval Co-operation Squadrons (Mira Naftikis Synergassias) – No 11 with the Fairey IIIF, No 12 flying the Dornier Do 22 floatplane and No 13 with the Anson I. ●

Right
After use as
bombers, several
DH.9s, including
NAY 97 seen here
in the mid-1920s,
were modified as
floatplanes and
based at Phaleron
for training





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VIVA ESPANA!

Pablo Peraita shares photographs he captured at Madrid's Barajas Airport during the heyday of classic jetliners amid Spain's huge tourism boom in the early 1970s...



Ilyushin Il-62 'Classic' SP-LAA 'Mikolaj Kopernik' (after famed Polish Renaissance polymath Nicolaus Copernicus) of Polish flag carrier LOT prepares to taxi at Madrid-Barajas Airport on March 3, 1973. Delivered new to the airline just 11 months earlier to cover transatlantic services, it was lost in a fatal accident near Okecie Airport in Warsaw, Poland, on March 14, 1980, following an uncontained engine failure. All 87 crew and passengers were killed. All images Pablo Peraita.





Above Spantax Convair CV-990-30A-5 Coronado EC-BZP reveals the type's elegant lines while taxiing at Madrid-Barajas. Delivered new to American Airlines as N5608 in March 1962, it joined the Spanish airline on April 12, 1972. Written off in a wheels-up landing at Las Palmas-Airport de Gran Canaria on March 19, 1984, it was withdrawn by the carrier in September of that year. With the airframe broken up in 1991, the forward fuselage was used as a cabin crew trainer. Today, it is preserved at Catalonia's Sabadell Airport



Above Trans World Airlines (TWA) Boeing 747-131 N93108 taxis at Madrid-Barajas on August 22, 1972. The 38th 747 off the production line and delivered to the US carrier on May 7, 1970, the jet flew its final revenue service on February 20, 1998. Withdrawn from service that day, it was flown to Pinal Airpark in Marana, Arizona on November 4 that year for storage. It was parted out two years later – although the flight deck lingered on for more than a decade before being scrapped



Left Bedecked in Air France markings, Dassault Falcon 20 F-BTMF taxis past Aerovías de México Douglas DC-8-63CF N4865T on April 24, 1973. Delivered to Avions Marcel Dassault's Europe Falcon Service subsidiary, F-BTMF was often leased by the French carrier for training. Later serving with Austria's City-Jet Luftfahrt and Spain's Audeli Air Express, it was last noted looking forlorn, stripped of its engines, and other components at Paris-Le Bourget in 2005

Below One of nine de Havilland DH.106 Comet 4Bs operated by UK charter carrier British European Airways (BEA) Airtours, G-APME taxis for departure back to London's Gatwick Airport circa mid-1971. The airline's Comets could carry 109 passengers in a single-class configuration. Passed on to Dan Air in 1972, Golf-Alpha-Papa-Mike-Echo was retired to Lasham in Hampshire on May 2, 1978, and scrapped the following year





Left You can almost hear the scream of TWA Boeing 707-331C N1793T's Pratt & Whitney JT3D turbojets as it taxis for take-off at Madrid's Barajas Airport in 1973. Delivered new to the airline on July 23, 1970, the jet was converted into a KC707 Re'em tanker by Israel Aircraft Industries for the Israeli Air Force in 1983. Assigned the serial '250' and coded 4X-JYY, the airframe was allocated to 120 Squadron – nicknamed the 'Desert Giants' – at Nevatim Israeli Air Force Base in early 1984. The jet remains in service with the unit today

Below April 26, 1973: Iberia Douglas DC-10-30 EC-CBN 'Costa Brava' taxis for departure. Delivered to the Spanish airline just five weeks before, 'CBN' was the first example of the type to be written off in an accident when it struck approach lights at Logan Airport in Boston in bad weather on December 17 that same year. At the time of the accident, the jet was a mere nine months old and had logged just over 2,000 hours



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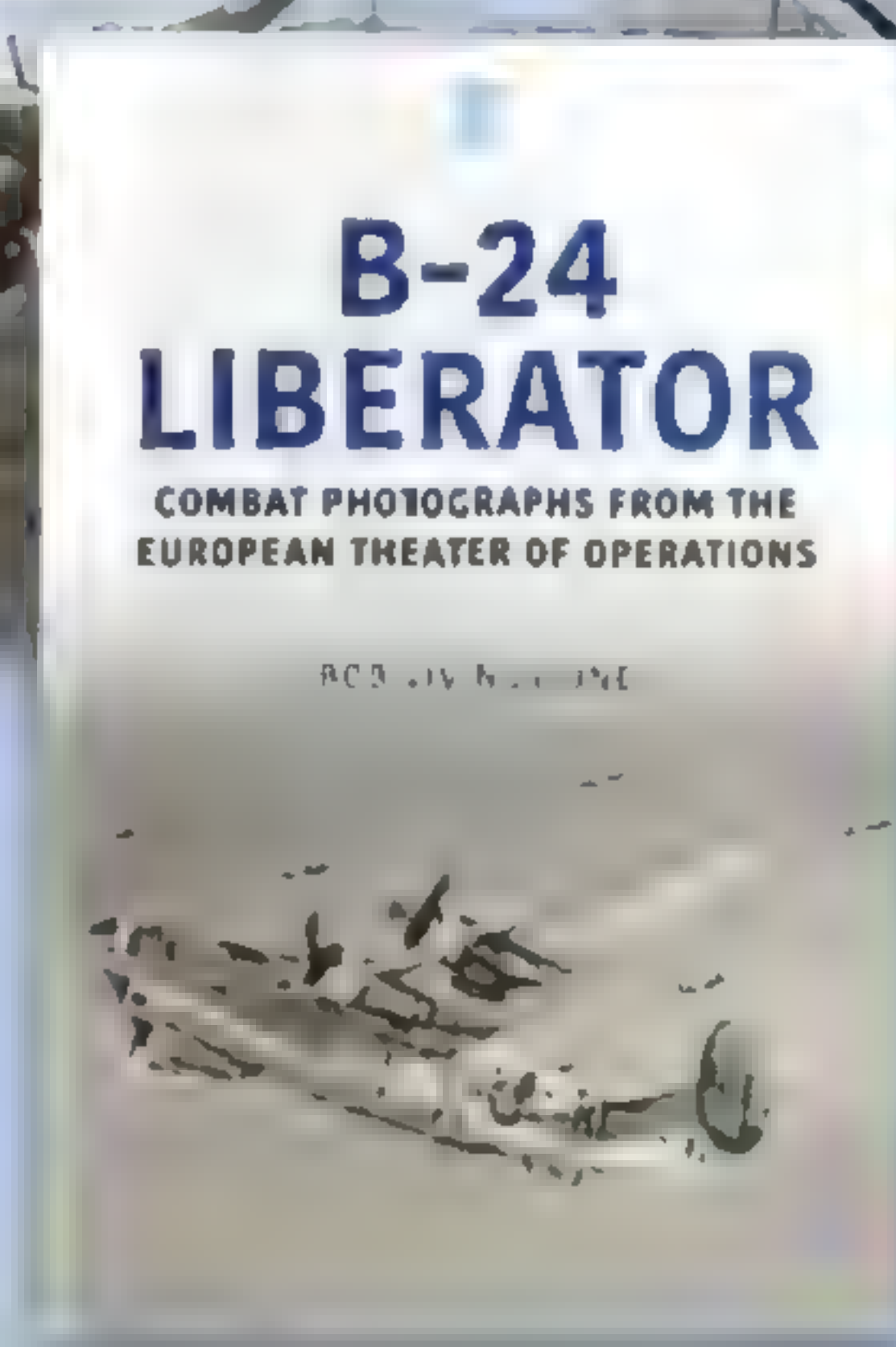
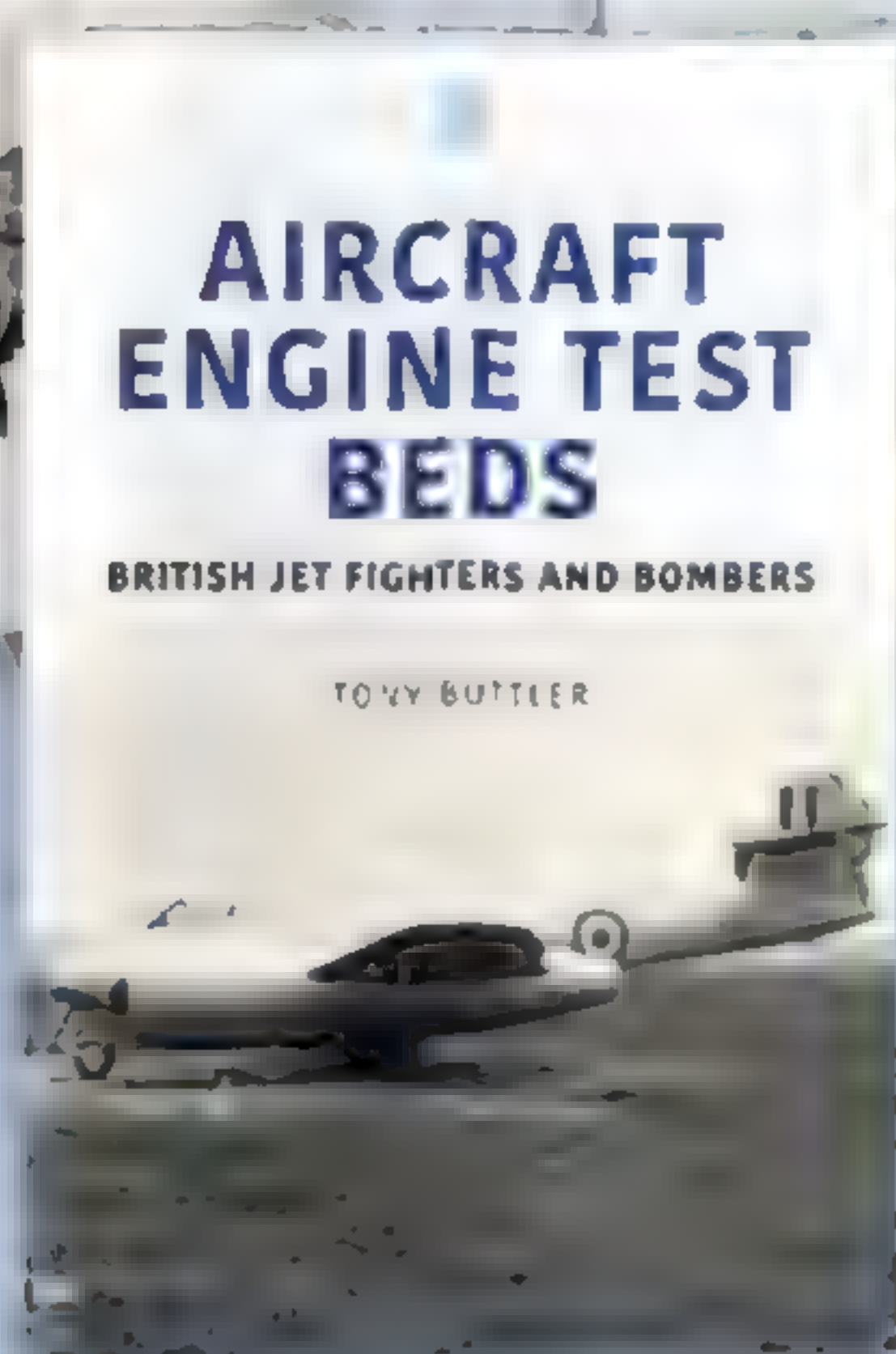
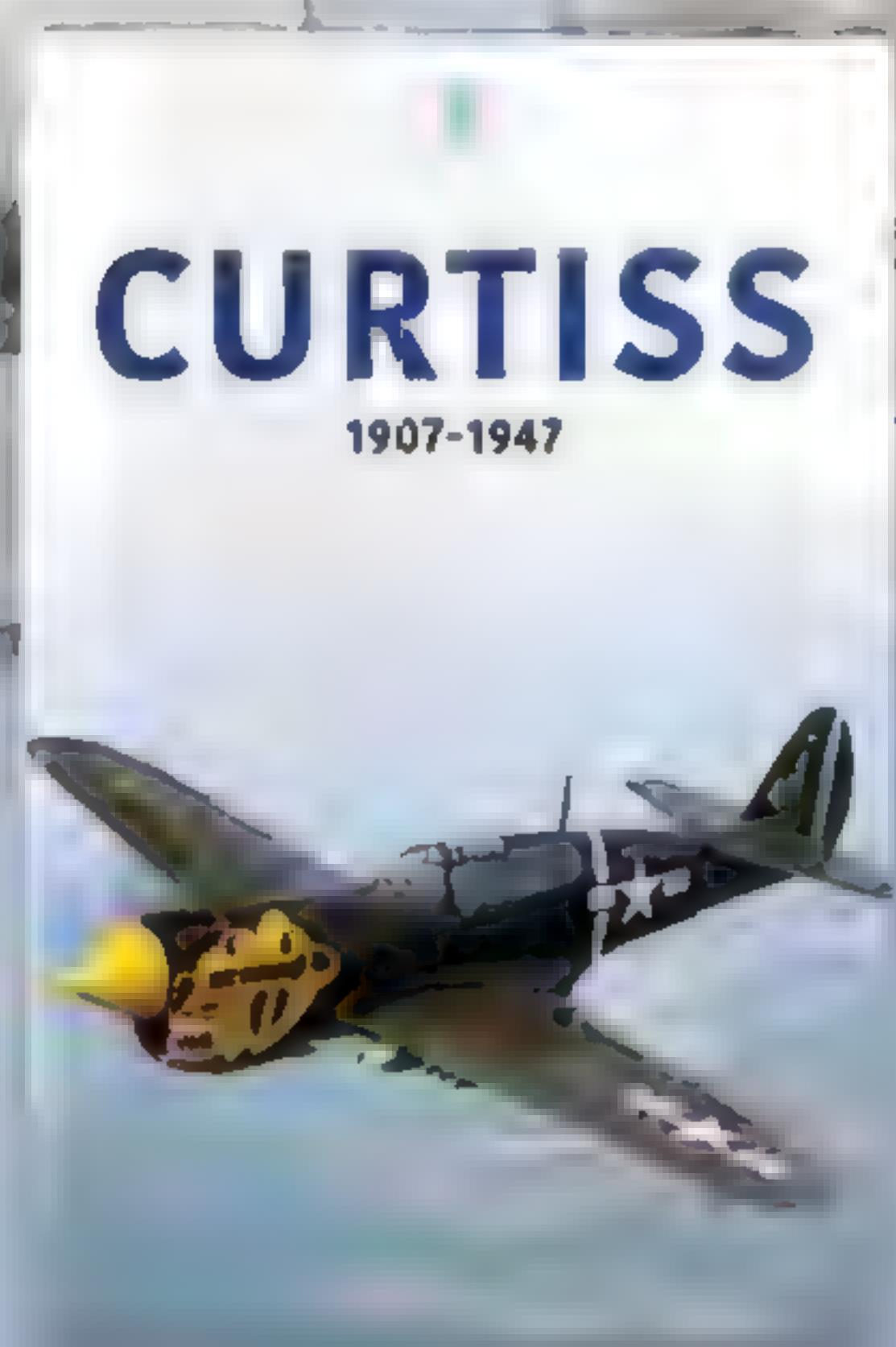
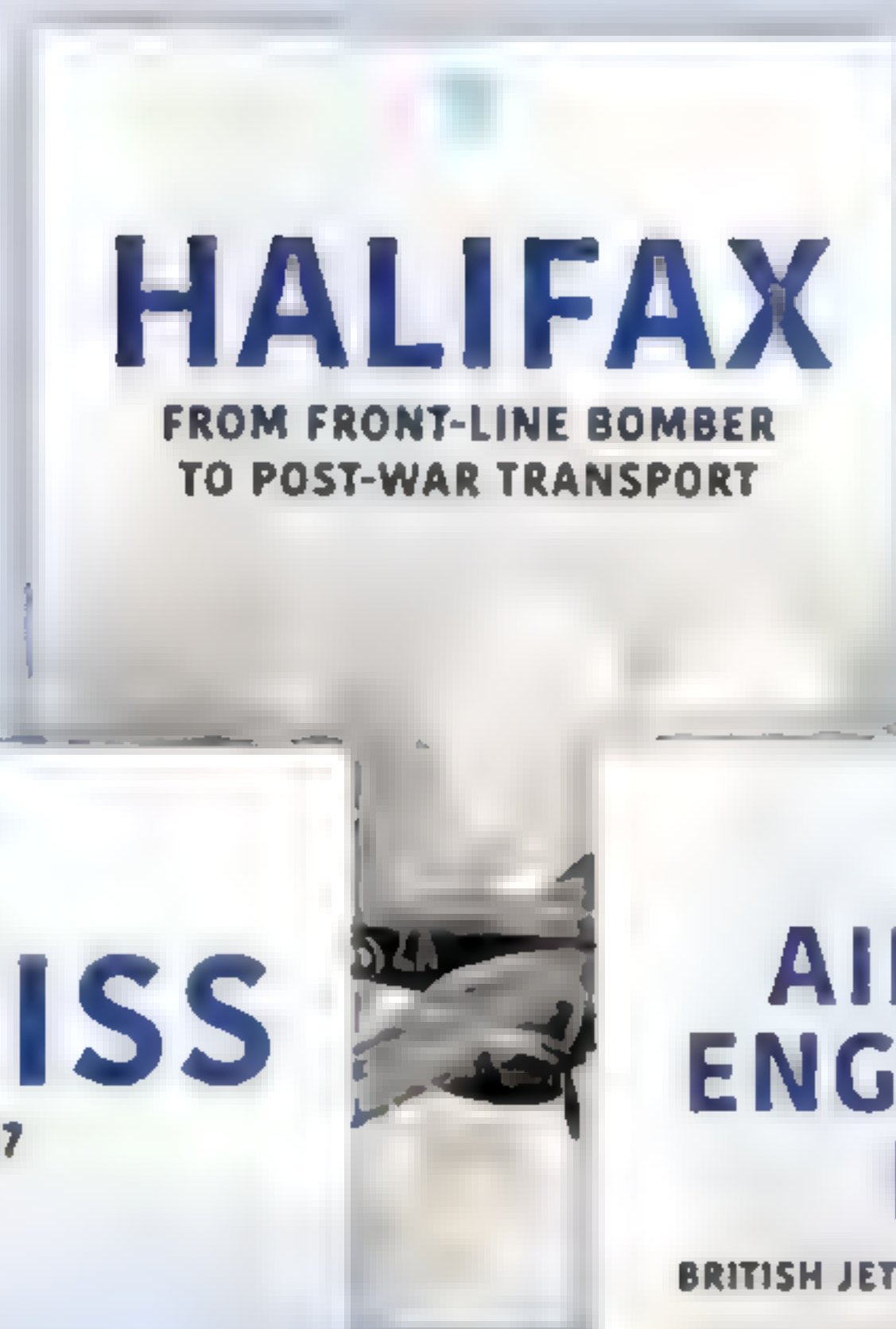
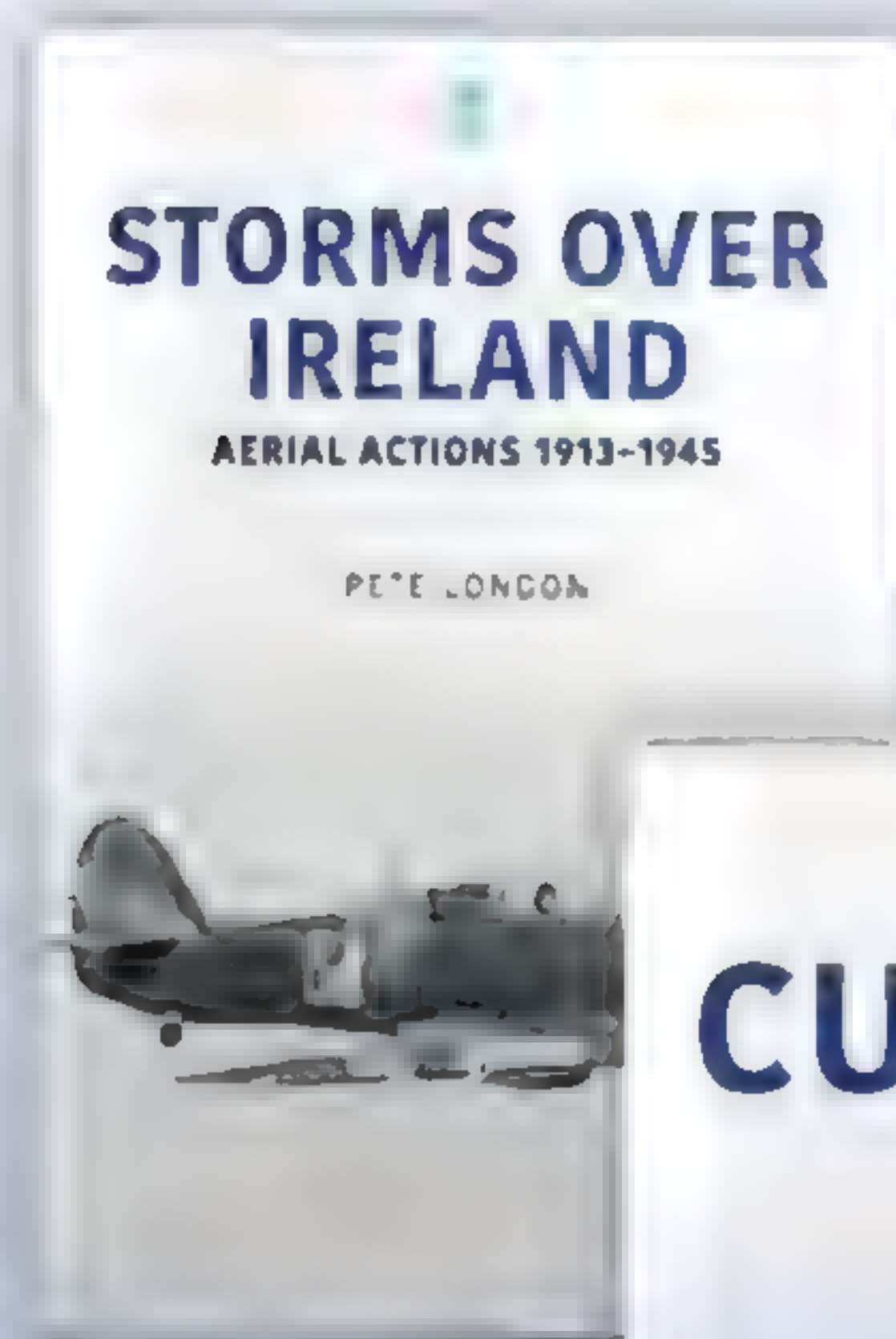
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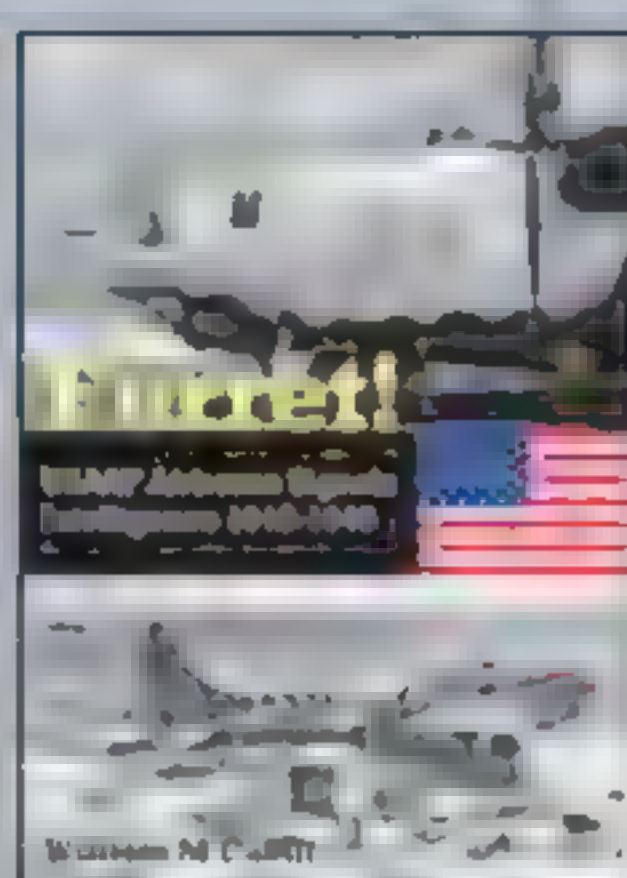
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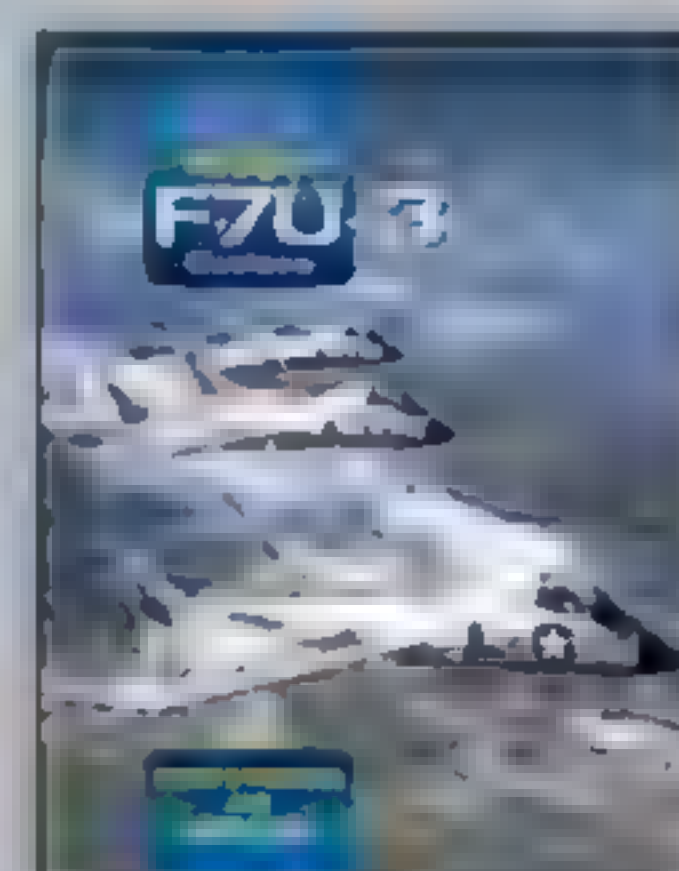


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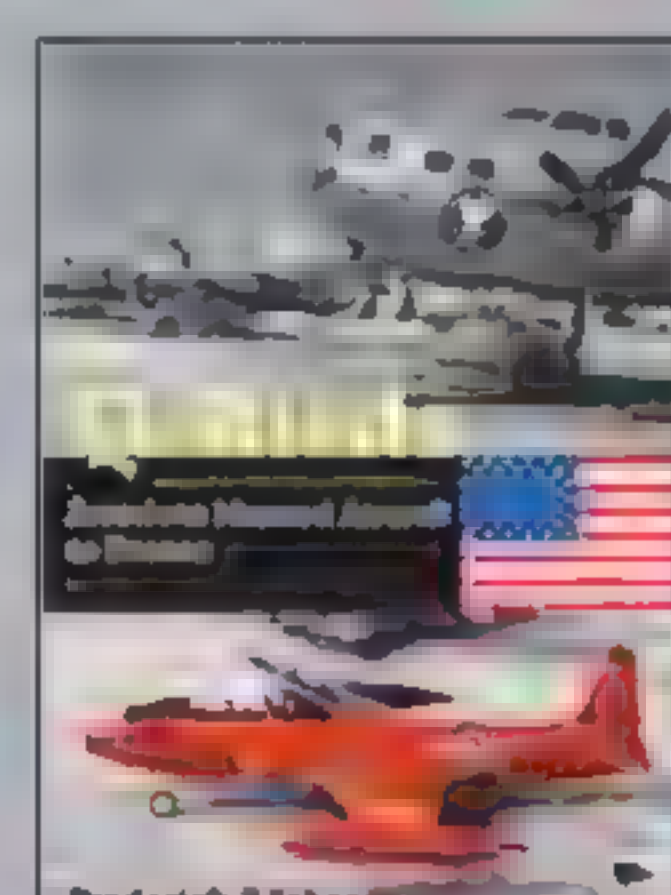
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THE MANY SALU

Right

As is now tradition, Duxford's 'Big Wing' closed the show on both days. Seen here growing over the airfield on the Saturday, the formation was made up of 12 Spitfires and three Hurricanes. If only you could hear an image...

All images KEY Jamie Ewan

Below

For many, the ultimate highlight of the weekend was Olle Norén with a surprisingly powerful aerobatic routine in the Swedish Air Force Historic Flight's magnificent Saab B 17A – the aircraft making its first appearance on the UK mainland for almost two decades, the last being Flying Legends at Duxford in 2005

Bottom

No Battle of Britain Air Show would be complete without a Spitfire driving an enemy machine from the skies – in this case John Gowdy in IWM's own Spit Mk.I (N3200) taking on Steve Jones in the Aircraft Restoration Company's appropriately dressed Buchón ('Yellow 10') to open the show...



TING 'THE FEW'

Imperial War Museum Duxford's Battle of Britain Air Show has cemented itself as one of the UK's airshow highlights – and this year's show again proved why. Held over the appropriate weekend of September 14-15, IWM welcomed some 33,000 people through the gates of the historic Cambridgeshire airfield to witness an immense array of aeroplanes from across the spectrum of flight take to the air. And while the near-perfect warm and contrail-filled skies of Saturday were replaced by dark clouds and a biting wind on the Sunday, it didn't deter the many saluting 'The Few'. **FlyPast's** Jamie Ewan was among them...



Left

World War One aviation was represented by a medley of types – including the Historic Aircraft Collection's quite incredible DH.9, the world's only genuine, airworthy bomber of the conflict. Filling the skies with the putter of its six-cylinder Puma engine, it's incredible to think DH.9s were based at Duxford more than 100 years before during the earliest days of the RAF

Below

Re-enactors were aplenty around the show. Here, pilots from 19 Squadron are portrayed by the wonderful Spirit of Britain group who specialise in reconstructing the past – and mightily fine they are at doing just that!

Below left

Making a very welcome return to Duxford's display roster was Comanche Fighters' Spitfire LF1X ML417 – seen here rolling out in the hands of Brian Smith following its participation in the 'Big Wing'. It was the first time '417 had flown as part of a Duxford display since 2001, when it was owned by The Fighter Collection



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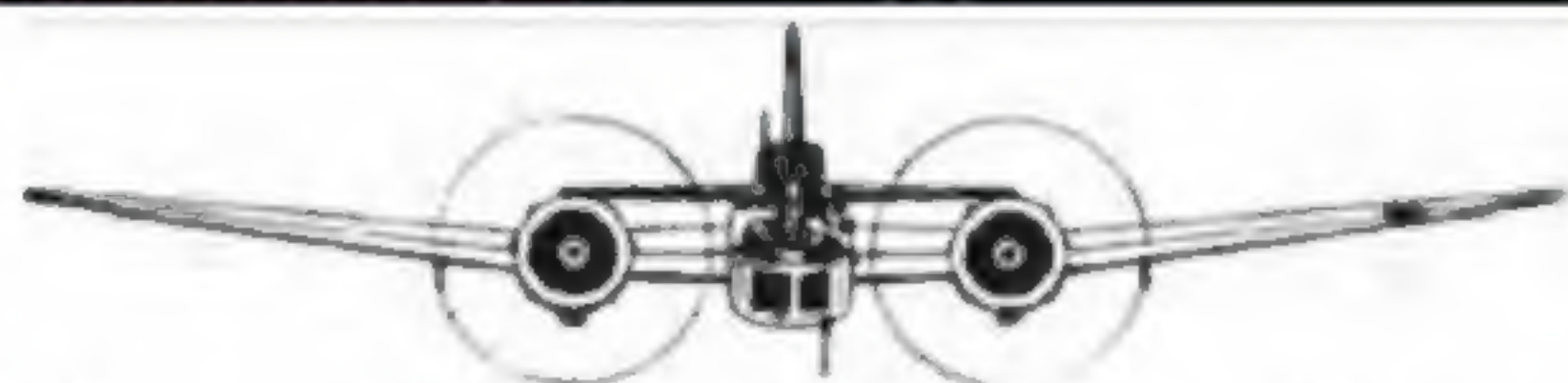
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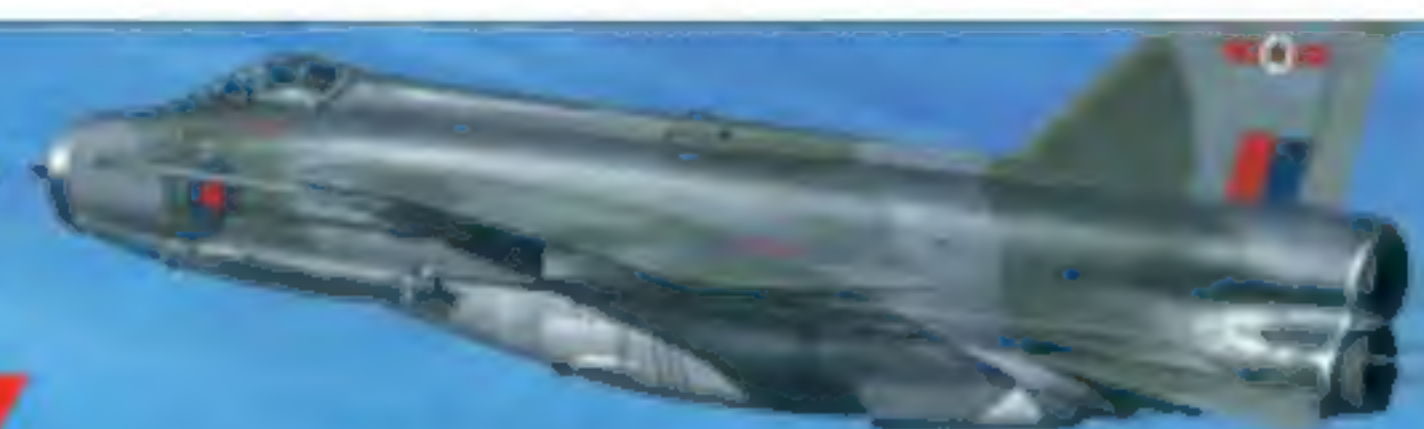
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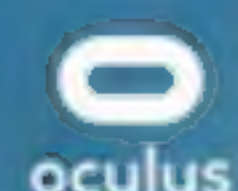
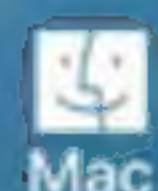
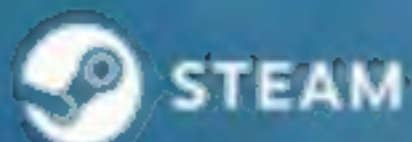
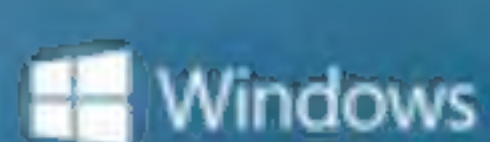


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